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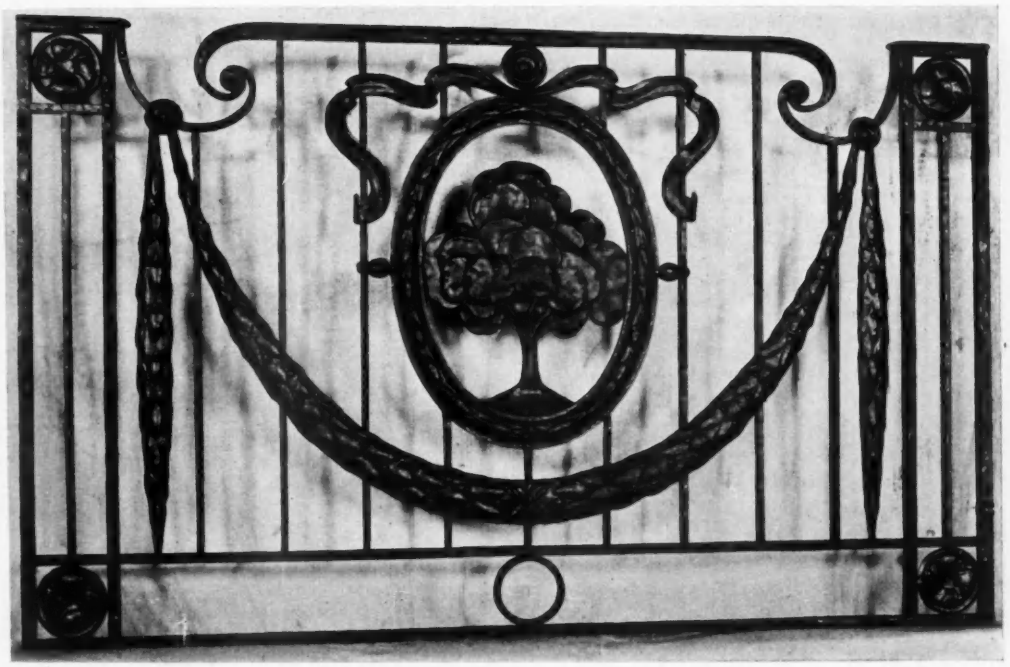

MODERN BALCONY RAIL IN WROUGHT IRON

The Development of Wrought Iron

*Second Article**

By C. HOWARD WALKER

THE later medieval centuries, from the twelfth to the beginning of the sixteenth, saw the growth and development of armor, which is a distinct art in itself, and was absolutely differentiated from the work of the smith which related to structural work. At its beginnings, made of sheet metal shaped to fit the human form, wrought and tempered carefully and with great skill, armor, other than offensive or defensive weapons, was of separate pieces, articulated and correlated to defend against the mace and the sword every vulnerable part of man's organism. Whether it were made of scales or of chains or of plate, its first essential was that it should be minimized in weight without permitting its protective qualities to be jeopardized. It therefore became delicate and scientific in line and surface proportionately to the importance of its possessors, and the armorers became known as artists, received admiration and were often famous. But armor itself was so controlled by the absolute exigencies of its use that variations in its design were either definite improvements to its efficacy or were merely either edge or surface treatment which neither added weight nor diminished its protective

*The preceding article by Mr. Walker appeared in issue of December 5, 1917.

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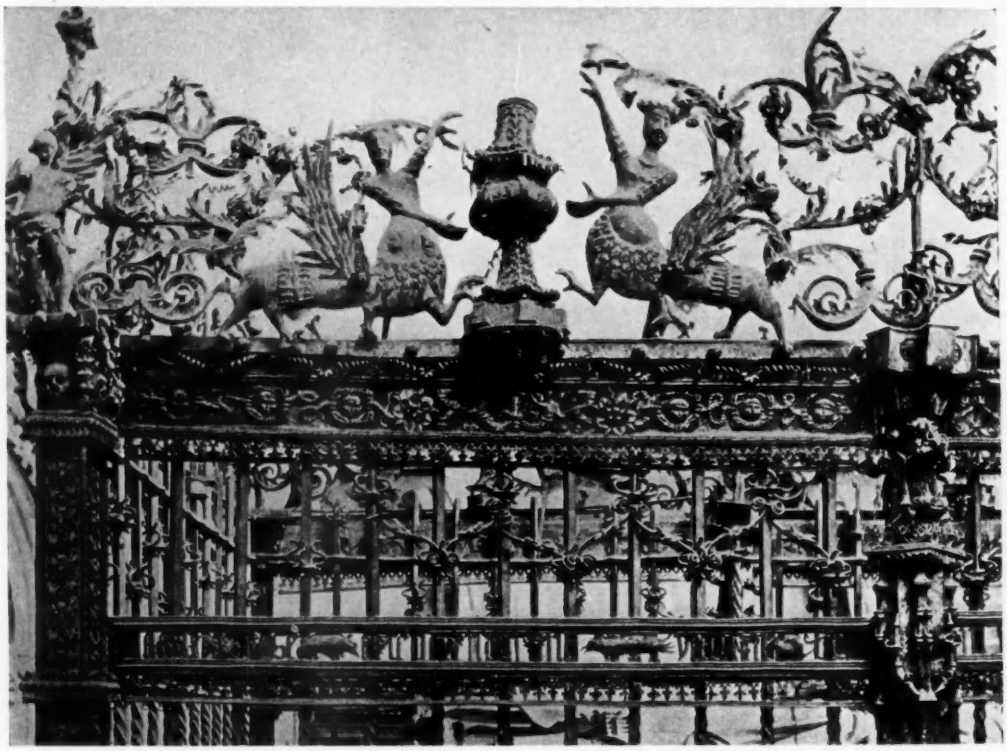
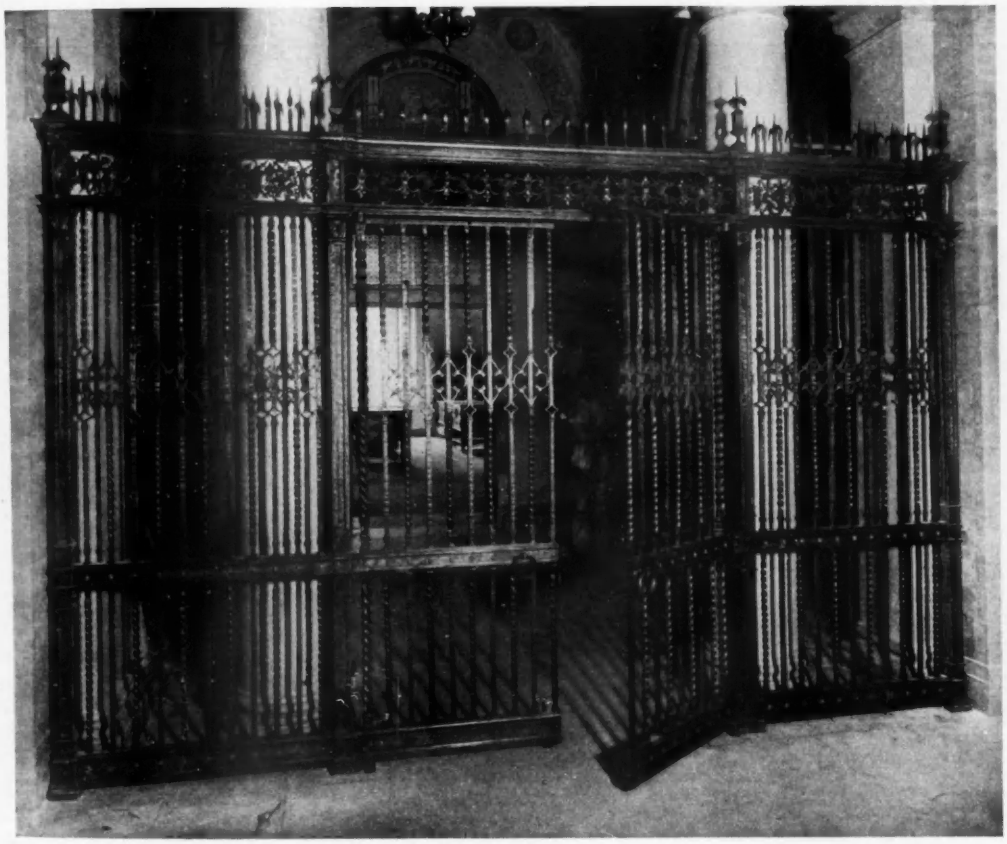
qualities. The use of iron in armor is therefore so fundamentally different, excepting in the material and the methods of working it, from that of the blacksmith, that it is a separate study. Its embellishment because of the multiplicity of its examples, and also because much of the work for the nobility was perfected and beautified by every known means of inlays of gold and silver, repousées, damascening and chiselling, became most elaborate and adapted upon its surfaces every variety of design borrowed from textiles, modeling and painted patterns. The elaboration of the surface ornamentation of the armorers became reflected in the treatment of hinges and locks, and even in some cases upon the plate work associated with gates and grilles. There is no doubt that in the thirteenth century, and perhaps earlier, the Mahommedan geometric intricacies of pattern, compelled by the edict against graven images in the Talmud, were seen and brought back to Europe by the Crusaders, and were also part of objects captured as well as of reciprocal gifts between Saracen and Christian, which stimulated design in Europe and provided an entirely new set of motives and systems of designing. Before the geometric systems of the Mahommedans, all-over patterns were of simple repeats of isolated spots, and running and special patterns were based upon a radial growth from a central focus, as in the palmette, or upon the fret and the scroll. Once appreciated, the patterns of the East were adopted in the West, and appear upon iron as well as upon other material. The fantasies of more facile crafts at first interested and then overwhelmed the smiths and they became vain of the ingenuity and supreme skill with which they made iron follow the designs of silver, of gold and even of fabrics, and the accuracy with which they interpolated architectural forms inherent in wood and in stone or even clay, and as clay is cast and wood is carved and textiles are woven, so the smiths begin to cast iron. to chisel iron. to weave strands and wires of iron. The results are masterly; they are *tours de force,* but in the process of the attainment of this great dexterity something is lost, which is the very soul of iron, its honest, direct, sincere virility.

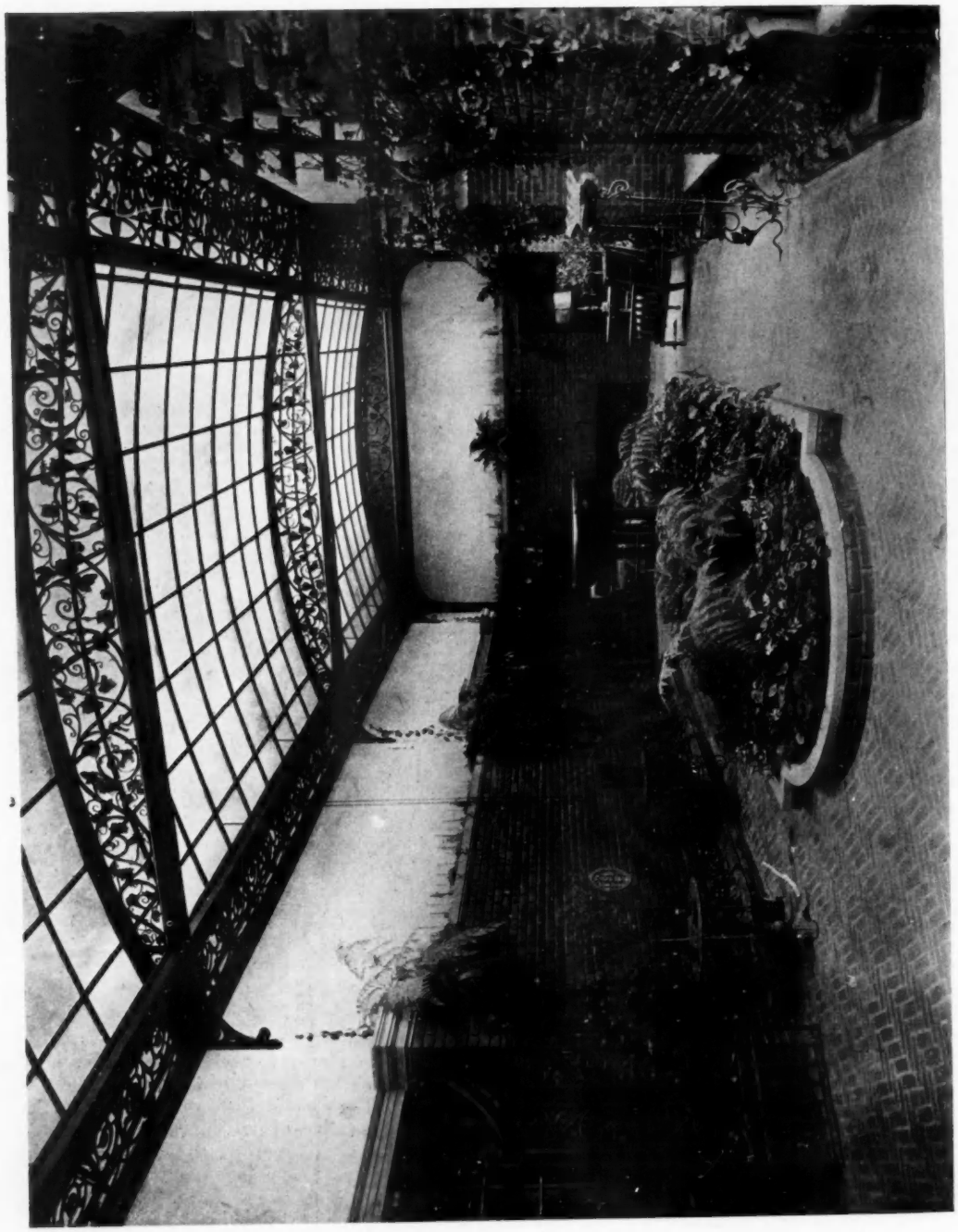


DETAIL OF WROUGHT IRON REJA, THE CATHEDRAL, SALAMANCA (c. 1437)
(From Rejeria of the Spanish Renaissance)

The history of the work of the smiths is therefore one of a decadence of the expression of the material and a very great accession of skill in making the material perform miracles. The admiration of this work therefore depends entirely upon individual point of view, and it can well be conceived that any criticism of marvelous skill may be considered unappreciative and unjustifiable. The fact, however, remains that the smiths during the sixteenth century become jugglers of a very exceptional merit. Vasari says that in Florence they aspired so to fashion their work that it was impossible by mere observation to tell whether it was made of iron or of wood or of leather. But the methods of working iron have changed little from the earliest times. The forge, the anvil, the hammers, pincers and shears for hot metal, and files, bits and saws for cold metal are but little changed. Electricity as a heat producer is the really important innovation. The increasing use in the sixteenth century of thin sheet iron has been mentioned, and the increasing practice of working iron cold in small rods and wires and thin sheets. The locksmiths who began to do more than use the simple lifting lever of the Egyptians in the fourteenth century especially desired to do imitative work. Venice alone was true to the early traditions, and the Venetian grilles even when of cold iron are of great beauty, but Germany, which was pre-eminent in iron in the sixteenth century, especially for its well covers, soon followed the example of the Florentine tricksters. In Spain the rejas or grilles before the chapels in the cathedrals are of great beauty, and Spain is especially skilful in the use of long delicate turnings and in the variety and richness both of arrangement and units of the ornamented mailheads in doors, By the seventeenth century ironwork followed architectural fashion, was seldom designed by the smiths,



WROUGHT IRON SCREEN, CHAMBER OF COMMERCE, CINCINNATI, O.
CASS GILBERT, *ARCHITECT*



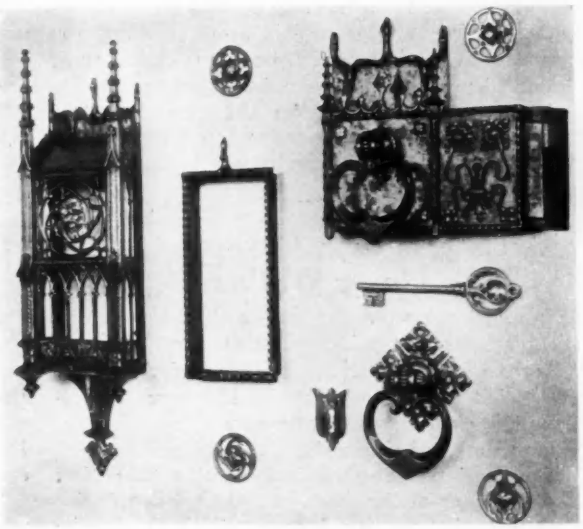
SOLARIUM HOUSE OF ARTHUR CURTIS JAMES, NEW YORK
ALLEN & COLLENS, *ARCHITECTS*

ARMOR, ABOUT XII CENTURY. WROUGHT AND INCISED STEEL AND IRON
(From Metropolitan Museum of Art)

but was carried out from drawings of other craftsmen, and the work is entirely stylistic. The Baroque style inspired by the restless mind of Michaelangelo and debased more and more by his imitators twisted and wormed its way into all designs. Whether as Baroque in Italy or Rococo in France, it more and more abhorred the vigor of a straight line. Until it appeared, while compound curves had been apparent in the elevations of architectural designs, they had been absent in the third dimension indicated by the plan, but the Baroque and Rococo now introduced these curves into the plan, and the ironwork especially began to ogee in all three dimensions at once. The result transcends imagination. Design becomes a species of legerdemain, and its opportunities for failure have been multiplied manifold. Not that the constant, insistent flow of the lines of these styles are not often interesting, always exciting some emotion, but that they are seldom admirable from all points of view, and are usually nervous to the point of hysteria unless modified with some factors, either actual or in arrangement, of the straight line. Herein lies the fascination and the danger of much modern iron work, which flows like a flame, with subtle rhythms in its design and requires, like fire, great care in handling.

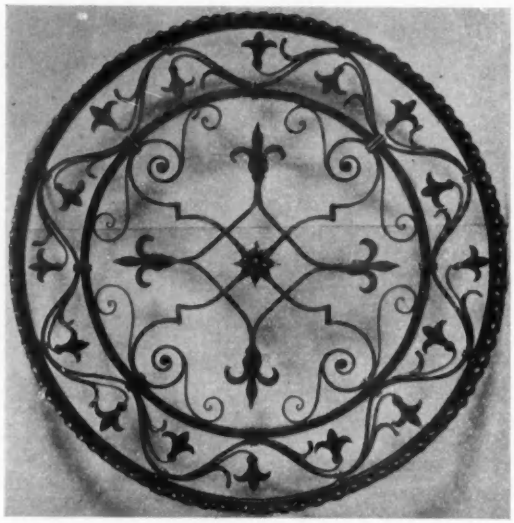
There remains one class of work in iron to be considered, i.e., cast iron. It is accepted usually that cast work is inferior to wrought, especially in iron, though *cire perdiu* bronzes are considered of superlative merit. The object of cast work is to obtain ornament that otherwise would have a totally different and at times an undesired character. With

WROUGHT IRON LAMP, CHAMBER OF COMMERCE, CINCINNATI, OHIO
CASS GILBERT, *ARCHITECT*



WROUGHT IRON TRIMMINGS. WASHINGTON MEMORIAL CHAPEL, VALLEY FORGE, PA.
ZAUTZWIGER, BORIE & MEDARY, *ARCHITECTS*

the present skill in casting there seems to be no reason why it should not be used, unless it pretends to be something else, in which case the inherent objection to falsehood adheres to it. To deny casting and merit seems unjustifiable. Good results from its use depend, as does all use of materials and of methods, upon good taste. The examples of



CIRCULAR GRILLE, EVENING NEWS BUILDING, DETROIT, MICH.
ALBERT KAHN, *ARCHITECT*

Mr. Yellin's work shown with this article are those of a master in his art. The designs are of many and of different types, and in every case the performance is admirable. Choice of the character of designs depends entirely upon individual taste.

We are indebted to John Williams, Inc., The Gorham Architectural Bronze and to Samuel Yellin for photographs used in illustrating this article.

Architects Urge Government to House Workers

In a resolution recently sent to President Wilson and members of the War Council, the New York Chapter of the American Institute of Architects urged that the Government should assume the responsibility of housing workmen employed in munition plants and shipyards.

The resolution further declared that "the New York Chapter of the American Institute of Architects feels that a general policy which throws the ultimate financial burden of these war-time industrial operations upon private corporations or municipalities is inefficient, because it believes that such a policy would long delay the taking of land and the building of the needed accommodations."

The following is a list of the specific suggestions sent to the President:

THE FIRST STEP

Create a central authority with:

(a) Power to take land for this purpose.

(b) Powers to survey needs for housing facilities and to determine, in co-operation with a central priority board, the relative importance of industrial operations.

(c) Powers to design and construct communities where the needs of such have been made evident by the survey.

(d) Powers to operate and manage these communities during the war and for a period of years thereafter.

(e) Powers to maintain a high standard of physical well-being in munition plants (adopting the standards set by our most progressive industrial corporations) and to organize community activities within the communities thus created.

THE SECOND STEP

Create a commission to study the final disposition of these properties. Such a commission to consider and report upon:

(a) The basis upon which such communities could be transferred to municipalities or local limited dividend corporations.

(b) The organization of local limited dividend corporations to manage and develop the communities created during the war.

(c) The establishment of that part of the cost which should be written off as belonging to the cost of war.

(d) The methods of saving of the appreciation of land values for the benefit of the community as a whole.

In discussing this matter Mr. Frederick L. Ackerman, who has just returned from England, where he has spent several months in investigations along these lines, stated that England had faced the same problem, and that Government aid had been found to be the only solution. Mr. Ackerman further said that "unless the Government takes the initiative and the entire responsibility we will continue to bargain about these matters, and our munitions and ships will not be fabricated."

Boston's City Improvements

Among new and encouraging signs of building activity at the commencement of the year are the reports from various cities of new plans being formulated, and important work soon to be under way. Boston papers tell of extensive improvements to be made to Back Bay Fenway, near the Museum of Fine Arts, and of plans for alterations and radical changes in Park Square. A Boston paper states:

"Assurances have been given that, with the proposed improvements authorized, scores of important building operations, entailing vast sums of money, will be begun within a short time, despite war-time prices of building materials."

Digest of Commercial and Financial News

Affecting the Practice of Architecture

THE problems of war finance, while not a subject capable of wide popular appeal, can nevertheless be made to yield some valuable articles for circulation among thoughtful people. The adjustment of war taxation. The balance to be struck between taxation and borrowing. The financial policies of the different belligerents. Past experience. These are all subdivisions of the subject any one of which can be made to shed an interesting light on the present situation. A great many people, no doubt would like to learn from an attractively prepared piece why the "pay-as-you-go" policy of war finance is neither desirable nor practicable beyond a certain point. This in turn raises the whole question of the adjustment of war taxes and their incidence, involving precedent and popular psychology, revenue production, the relative merits of old and new methods of taxation and its collection, of direct and indirect taxes, etc.

What proportion of the expenditures of government in war time shall be defrayed through taxation and what proportion through bond issues? This has been called the "crux of the matter." Authorities differ. Why? History can be made to produce a lot of colorful matter on this subdivision of the main subject—both very recent war history as well as that of the centuries gone by. Germany and Great Britain offer a marked contrast in the matter of their financial policies in the present conflict, illustrating most strikingly the tempers of the two peoples and shedding a bright light on their respective motives in entering the war.

These are only a few of the points in this large subject which immediately suggest themselves in connection with our own war finance policy and its whys and wherefores. There is a vast field awaiting exploitation in the probable consequences after the war of the different policies pursued by the belligerents. It is the consensus of expert opinion that our own policy is a sound and wise one and that our financial future is secure.

THE report made public by the United States Chamber of Commerce shows that "extraordinary and abnormal demands made upon every one, from farm boy to corporation head, have left the nation steady and with heavy reserves coming into the new year." The attitude of the business world toward the future, it is stated, seems to depend much upon local conditions, and in districts where crops have been poor there is naturally a great deal of conservation and caution in purchasing.

"In general, however, in the larger portion of the country the buying power of the many is greater and more widespread than ever before, so that the general view seems to be a sustained confidence, tempered by the realization that no one can possibly divine what the future holds in store for us, and consequently all purchasing is for needs and wants, with the element of speculation almost entirely eliminated. Apparently, the general volume of business seems assured at something like its present status during the coming winter months."

The report was made by the chamber's permanent committee of statistical experts, of which Archer Wall Douglas of St. Louis is chairman.

THE year 1917 was momentous for this country not alone because it marked the abandonment of the policy of isolation that would have prevented us from participating in a struggle to uphold and perpetuate human freedom, but also because it brought to the United States a marvelous expansion.

Our exports reached a total of more than $6,000,000,000 and our imports amounted to about $3,000,000,000 during 1917.

The National Government borrowed $5,808,000,000 by selling its bonds in the two Liberty Loans.

The money supply reached a total of $1,300,000,000.

Bank clearings touched unprecedented figures. Both deposits and loans exceeded all previous records.

The crop yield of all cereals excepting wheat passed all high marks.

We loaned approximately $4,000,000,000 to our allies in the war against Germany and Austria-Hungary.

These are only a few of the stupendous totals which are made records by the close of the year.

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A Plan of Organization of the Building Industries for War

FOR many years it has been evident to every thinking man, and particularly to those who came in contact with Governmental work either in a professional capacity or as contractors and material supply men, that the business methods of the National Government in almost all directions were wasteful, inefficient and extravagant. In fact, if the matters concerned were not so vitally important they would be almost ridiculous. It has been a source of wonderment that any body of such hard-headed business men as our National Congress is popularly supposed to be has tolerated so long the continuance of this condition.

Now that the country is engaged in war the defects of this antiquated system have been strongly emphasized, as the results obtained have fallen far below what should be expected from a country of such great resources as this. The necessity for some radical reorganization is becoming more and more apparent.

The principal weaknesses of the present system seem to lie in the absence of any co-ordination between those engaged in similar work in the different executive departments of the Government. As an instance, there were, and as far as is known there are yet, at least six divisions in the various departments engaged in the construction of buildings and in structural engineering work. In one case there were two such offices in one department, both conducted under separate management with a corresponding multiplicity of overhead cost and under a variety of rules and regulations that are confusing to say the least. All of this work could readily be combined with a very material gain in expenditure and efficiency.

To overcome this lack it has been urged many times in the past that, as has been done by the majority of the older nations of the world, there be created a new executive department, to be known as the Department of Public Works. To this department there would be assigned the actual conduct of all structural work and the kindred branches required by the various units of the Government machine, except those of a purely technical character, such as fortifications, which should be handled by the War Department, and ships, which should be under the care of the navy. Such an action has been more or less spasmodically agitated by the American Institute of Architects from time to time, but without any particular progress being secured as yet.

There has been received from a prominent architect of the Middle West, whose firm has had considerable experience in carrying out Government structural work, a brief outline of a plan of organization. This, it is believed, would go far toward remedying the defects of the present system, if it did not entirely cure them.

The present seems to this journal a most auspicious time to take up this subject, and if every great national organization, their chapters and branches, and every individual who is interested in the welfare of our country, would get behind the movement, such a sentiment could be aroused as would compel our national legislators to take cognizance of it and make provision for the enactments that would put it in force.

The plan of a possible organization, referred to above, is as follows:

The United States to be divided into Building Zones or territories.

In Washington, a Central Administrative Head with an Advisory Building Board, composed of representatives from each Building Zone familiar with conditions in each locality. This body to work in collaboration with similar Boards, such as Shipping, Munitions, etc.

In the principal city in each Building Zone would be established a completely organized expert working force presided over by a governor or manager. This working force would be composed of architects, surveyors, civil, structural, and sanitary engineers, real estate experts, draughtsmen, etc., with local council of building material men of all kinds and representatives of capital and labor—all composed of men not liable for military service. These men would be enlisted for the duration of the war and subject to the call of the manager; to be paid salaries according to rank if constantly on duty or in proportion to the time of service required.

Suppose, for example, the Government required, in the shortest possible time, a quantity of cotton cloth for making tents greater than could be supplied by existing mills. The Central Administrative Council ascertains that St. Louis, for instance, is favorably situated as to access to cotton fields, for transportation and for supplies of labor, but has insufficient factory area. Orders would be given to the St. Louis governor who, through his organization, would survey existing factories or select sites for new buildings, which might be temporary or permanent in character. Through the same organization surveys and plans of necessary alterations or new work could be prepared with the least possible delay and contracts let according to some approved method; or the board itself would be equally prepared to sublet all contracts for materials and hire its own labor, thus virtually doing its own building under complete governmental control. The project would be financed through a similar finance board in co-ordination with the Building Industries Board, or some other governmental agency to be devised.

We are now considering only the building project, but it is suggested for the manufacturing end the government might make use of the established local organizations in any particular industry.

This same plan might well be applied to almost any object requiring construction pertaining to war requirements, such as docks, river or railway terminals, warehouses, etc., as the board would have at its disposal specialized experts in any department of work.

This board would also be equipped for the consideration of problems such as housing of operatives, etc.

An Essential and Important Detail

By George B. Heckel

Secretary Treasurer, Paint Manufacturers' Association of the United States

In my last article, on Specifications, I tried to point out the difficulty of writing specifications for paint or varnish along the familiar lines of the chemical formula. I wish to emphasize once more, before I leave the subject, the difficulties involved in such procedure.

In the manufacture of paint and still more completely in the manufacture of varnish, we are utilizing a field of chemistry which is still but partially explored—the field of physical chemistry, the domain of colloids, solvents and solutes, suspensoids, surface tension—the class of compounds which the older generation of chemists disrespectfully referred to as "messes."

Manufacturers in general have, in the past, cut this Gordian knot of technology with the dull knife of experience. Through costly failure they have learned how not to do it, and through remunerative success they have learned how to do it.

Physical chemistry as applied to industry is, to all intents and purposes, a new science, but it is making headway. The time may come when it will be possible, if desirable, to write a "hog-tight, horse-high" specification that will be both fool-proof and fraud-proof; but not yet, my brethren, not yet, by several dimensions, including the fourth.

Meanwhile, from some comments that have reached me, I believe that in my earlier venture on the subject I was fortunate enough to indicate a practical possibility in the direction of more intelligent specifications.

To the average architect paint and varnish are little more than a troublesome detail of his larger work. He is primarily either an engineer, interested in stresses, loads, modulus of elasticity and the slide rule; or an artist, interested in the cross-breeding of the several schools of architecture. To the one, paint is a necessary evil; to the other, a decorative adjunct; to both a mystery full of annoying possibilities. To the paint man, on the other hand, paint is the insurance policy of the engineer, the laurel crown of the artist.

The first function of paint is conservation—the protection of the material to which it is applied. Its decorative function is secondary and incidental, and it is by good fortune rather than by design that we are enabled to utilize a preservative medium for decorative purposes.

If this statement be correct, it follows that we should select our paint as carefully as we select our wood, our steel, our cement, insisting first of all on efficiency, and durability. After these are assured the choice of tint, color, tone—the entire range of decorative qualities—follows naturally and easily.

And how may we judge of efficiency and durability? Just as we judge of the same qualities in any other materials of common use—by experience. The paint specification or the varnish specification that follows routine is no specification at all. No one can write a specification for anything on that basis. Most of the routine specifications in use have been handed down from a technology and a practice that were defunct before the user of them was born.

The paint and varnish manufacturing industry has undergone a revolution within the past decade, very many of the materials called for in the routine specification no longer exist. They are as if a man wishing to travel from city to city should demand a coach-and-four with postilion and outriders.

Time was when paint was paint. Time also was when steel was steel and wood was wood. That time is this time in neither case. As building materials have multiplied to meet multiplying conditions, so paint and varnish products have been multiplied to protect them. And as the architect habitually takes cognizance of changes in building materials, so also, it seems to me, should he take cognizance of the changes and adaptations in paints and varnishes. Because one has always done a certain thing in a certain way is surely no proof that that way is the best way.

Paint is, indeed, a detail of the architect's profession, but it is an essential and an important detail, deserving as much study as, for example, decorative hardware.

There has been published during the past ten years a veritable library on this subject, with which I suspect the average architect is as unfamiliar as if it had been issued by "old Rameses" in hieroglyphics. It is all of it worth his serious attention. As a starter permit me to cite just two samples: First, "Paint Researches and Their Practical Application," by Henry A. Gardner of the Institute of Industrial Research; and, second, "Paint and Varnish," being Circular No. 69 of the Bureau of Standards. The author of this very sane and sensible paper is not given, but I very strongly suspect

Messrs. Percy H. Walker and S. S. Voorhees, either or both, of modest anonymity in its preparation.

A reading of these will serve as an introduction to the subject and will undoubtedly lead to a higher respect for this important building material.

Incidentally they will throw some light on the subject of paint and varnish specification.

An Architectural Row

Most of our readers are no doubt familiar with the efforts that have been made by Mr. Willis Polk of San Francisco to prevent the execution of the accepted design for the proposed California State Building.

Mr. Polk, always aggressive, has during his campaign in this matter addressed a letter to the Chief Justice of the Supreme Court of California.

Aside from the question involved, the merits of which we shall not discuss, Mr. Polk's letter is a most interesting one, and for that reason it is printed herewith. He writes as follows:

Hon. Frank M. Angelotti,
Chief Justice, Supreme Court of California,
San Francisco, Cal.—

My Dear Mr. Angelotti:

The State building controversy seems to be an architects' row—a row that had its inception in the days of Rameses—that will probably continue to rage five thousand years hence. It is a row over the advisability of accepting classic standards rather than charming unconventionalities. Both sides are well entrenched; neither side will ever yield, hence the pyramids. Seriously speaking, and in the present instance, it is no wonder that our State authorities are in doubt. It is no wonder that our Governor, our Chief Justice and our Attorney General hesitate.

The architectural members of the jury that passed upon the design for the State building were divided—one was for classic orderliness; two were for charming dissimilarities. Unconventionality won; orderly observance of classic rules lost.

Now, the State Administration, upon whom the responsibility is by law imposed, is naturally in a quandary—they have no desire to spoil our Civic Center by the construction of a building that will not harmonize with existing buildings. As a matter of fact, they are probably more than anxious that no mistake shall be made, but the mills of the gods grind slowly.

Ideals in art are established by the evolution of community spirit and thought. Such evolution always results in so-called "classic standards." Such classic standards in architecture have resulted in buildings, groups of buildings and places that receive universal admiration. As well decry a classic standard in architecture as to decry classic music; as well substitute ragtime or a jazz band for grand opera; as well substitute poems in slang for classic literature; as well substitute "Jimmy Fadden" for Shakespeare; as well substitute Bolshevikism for law and order; as well substitute unauthorized tribunals for established courts.

Therefore, as long as the State Building controversy seems to be a mere architects' row, what harm could possibly result if our State authorities should submit the entire matter to a jury of architects, not locally interested, and not necessarily prejudiced either one way or the other—architects of high standing from other communities. Nothing ought to be too good for California; no step should be taken that will not give us the best. Why not try to get the best? It is hard, it is doubtful, but at least we should try. If we persist in adopting the present condition and fail, the fault will be ours. If we seek further advice and fail, we cannot be charged with not having tried to do our best.

If my dear Mr. Angelotti, you rely in any way upon my judgment, will you not communicate the foregoing to your associates?

I would be more than pleased to make the subject-matter the text of a personal conference.

Believe me to be,
Most sincerely and respectfully yours,
(Signed) WILLIS POLK.

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The Story of an Architect

AN anonymous writer has contributed to the "Christmas" *Century Magazine* "The Story of an Architect."

Taking up what is presumably a sketch of his own life, he begins his narrative at the age of ten years, when he first receives the mental impulse that later leads him to select architecture as a profession. From this point to the close of the article, every word shows an intimate acquaintance with the things that every architectural student at one time or another experiences. The reading of this narrative, therefore, will serve to revive in every man's mind many scenes and incidents that have lain dormant so long as to have been almost forgotten.

Telling how, as a lad, he built castles on the ocean beach, and how one day "a pleasant-faced young man came along and, sitting down beside me, watched me work," he describes how he became deeply interested in the dexterity with which his structural difficulties were set straight. He tells how this "grown-up" helped him in "so quiet and tactful a way that, instead of being scared off, I was pleased to have a grown-up play with me." The identity of this architect is not revealed, but we learn that "his interest in me and his apparent desire to have me become an architect did not cease with building sand castles. For a number of years after that he used to send me from time to time copies of THE AMERICAN ARCHITECT, containing illustrations of drawings he had made or homes he had built."

The unknown architect evidently believed, it would appear, in training up a child in the way he should go, and by making him thus early acquainted with THE AMERICAN ARCHITECT set his pupil on the right road and in the right direction toward future success.

The writer takes his reader in the most delightful way through his subject's college days, tells how he came to receive a scholarship, and then relates his drafting-room experiences when he had at last embarked on the serious work of his profession. The whole article is a recital by one who is undoubtedly a keen observer of things about him, to which rare quality he adds a very pretty style in composition that makes the story one which every architect will enjoy.

Setting down his impressions of men and conditions at the time he started out "for himself," he writes, "I have found most architectural draftsmen herd by themselves. They do not often go to parties, they do not go much to the theater; they are always walking about the Metropolitan Museum or some picture show, or taking trips out to see old Colonial houses or working on problems in ateliers. The salaries they get are below those of bricklayers and carpenters who execute the work from the drawings they make."

At the end of this description of a certain period in the architect's career, he makes this assertion, in which every architect will heartily concur, "There is certainly something in the profession that gets the men as does no other profession that I know of."

Concluding the article, he shows how intimately he realizes the things that every architect feels. No other than an experienced and well trained architect could have said: "Yet, even the profession as a whole is underpaid even by the best of clients, and apparently it always has been.

"When an old house in New Haven was torn down a few years ago, these words were found cut in the cornerstone and signed by the architect: 'I have caused this beautiful building to be erected for your use as well as for mine, and have taken much pains to accommodate you, for which you will never pay.'"

In view of present conditions in the field of architecture, and the submergence of the identity of architects under the builders, contractors and owners, the above quotation can be re-read with thoughtful purpose. At no time have the rights of architects to authorship been so generally ignored as now. The pay that this unknown architect refers to is not, we believe, the actual receiving of money,

but what is perhaps of even more consequence to every architect, the recognition of his services as the originator of a tangible, useful creation of art.

Considerable good is accomplished by the publication in a popular magazine of an article of this sort, and it will serve to acquaint many who are not alive to the importance of architecture with a better realization of its aims and high purposes.

The Function of an Architectural Association

JUST at this time, when problems affecting present conditions and the future success of the practice of architecture in the United States are subjects of discussion, it is interesting to learn that very similar conditions confront the members of the profession in England. English architectural journals of recent date give a leading position to the discussion of an address delivered by Sidney Webb at a monthly conference of the R. I. B. A. Mr. Webb's topic was "The Function of an Architectural Association."

He predicated three impulses as influencing the attitude of what he calls vocational associations—the Creative, the Fellowship and the Possessive. These impulses, he claimed, were strongly manifested in the medieval guilds, and their proper coordination was the great factor of their success.

Following to a certain extent Mr. Webb's analysis of these impulses, we shall find in the first group, the Creative, men who regard the highest elevation of architecture as an art of supreme importance. It is this class of thoughtful, studious men that has conserved the dignities of the profession and fostered its educational methods by actual example and wise counsel. To a certain extent "dreamers" and lacking the practical point of view of other members, they will regard "art for art's sake" as the essential thing, and be content to leave to others the routine of conduct of architectural or vocational associations.

The Fellowship group will stress the importance of professional conduct, will insist on codes of ethics and will be more concerned with the forms of government of associations than with the tangible results that such organizations might effect.

The Possessive element will be disposed to conserve to themselves, or to the association of which they form a part, all possible exclusiveness of practice. These ends they will endeavor to attain by the enactment of registration laws and rules that will limit the eligibility of the unaffiliated members of the profession. They will seek to erect a stockade that will act as a barrier to all but the most aggressive.

Each of these groups possesses attributes that contribute to the fullest measure of success and with each also are combined certain features that are inimical to the well-being of an organization.

But, co-ordinated in the proper way, under a well-balanced centralized governing power, there are the same great possibilities for good as were pointed out by Mr. Webb as the fundamental reason for the great success and powerful influence of the medieval guilds.

The Architects' and Builders' Journal, commenting on Mr. Webb's address, with particular reference to conditions which are believed to prevail in the present organization of the Royal Institute of British Architects, states, in substance, that a vocational association which sets out to maintain a standard of efficiency must be exclusive of those who are unable to reach the standard, and that it is beside the mark to object that 90 per cent of the profession represented is excluded.

It is difficult to concur in such a statement.

An architectural association that seeks to control the activities of the profession, to regulate its ethics and conserve its rights, should undoubtedly be representative in character. To become so, it should include in its membership the majority of the men in its field.

From observation of results in this country it is apparent that an attitude of exclusiveness has served to prevent a more extended interest in the work of the Institute, and on this account many men who would be desirable members have failed to join the Institute.

The true function of a vocational (architectural) association would, therefore, appear to be that it first of all be a representative body, including in its membership a majority of the profession and by its activities present a satisfactory excuse for its existence.

Criticism and Comment

A National Organization

The Editors THE AMERICAN ARCHITECT:

Referring to the editorial published in the issue of Dec. 12, I beg to say that it seems to me to be rather unwise and extravagant to scrap a machine which we have been sixty years in building, and substitute for it one which cannot possibly give better, or even as good, service. Your implied and open criticisms of the American Institute of Architects will apply with equal force to an organization such as you propose just as soon as it has ceased to be a new broom, for the weaknesses of the Institute are the weaknesses of all organizations of men or women and merely reflect the frailties of our dear old human nature.

The American Institute of Architects has accomplished very much as a national body; it has given the profession, among other blessings, a standing which, insufficient though we believe it still to be, is far better than it has been in the past. And who, may I ask, has accomplished all this? As you admit, a very small minority of practising architects. When that large group of gentlemen, who now offer only adverse criticisms, will put their shoulders to the wheel, will become members of the Institute and reform it from the inside according to their desires instead of trying to mend it from the outside, the work of the Institute will be considerably expedited, it will be less burdensome on those who are sufficiently public spirited to do their share and through it the status of the architect will be appreciably raised in our day. However, after all is said and done, nothing really affects the status of a profession or business so much as the quality of the work done, the manner of doing it, and the appreciative capacity of the public for it. Just as long as the work of the rank and file of our profession is more or less uninspired, just so long will the word "architect" fail to produce a thrill among intelligent observers and until something is done to educate Mr. John Doe and family in matters architectural as the Victrola has educated them musically just so long will they fail to recognize good architecture when they see it. We do not need more or other societies to better our position. Our needs lie in an altogether different direction, because our dissatisfactions are largely outgrowths of a point of view. If we have grown a little sour let us not grope about for new instruments but frankly examine ourselves and see whether the first remedy does not lie in discovering the true nature of our shortcomings. A correct diagnosis is half the battle. For one thing, we would all be doing our work with much greater pleasure and therefore, no doubt, with better results if a broad communistic spirit among architects were to replace the selfish, often cowardly and contemptible, spirit of individualism which too often possesses many architects, both in and out of the Institute. In the genuine acceptance of an *esprit de corps* added to a love of good architecture, which familiarity will give the public, lies the solution of many of the problems you conjure up.

By the way, is anyone quite certain whether the practice of architecture today is a profession, which inhibits disregard of the golden rule by a code of ethics; whether it is a sure enough business, where nothing short of piracy is proscribed, or whether it is a hybrid with hybrid morals? A clear decision as to our status will also remove many of the perplexities which beset this art-profession-business. A client of ours said to me one day, "Yours is a noble profession but a h—l of a business." Our job, it seems to me, is to take the h—l out of the business side of our vocation, and the Institute can do it and will do it when the new spirit pervades young and old practitioners. Will all the now living architects be under the sod and must a new and better and wiser generation grow up before that wonderful day arrives? The answer, I am sure, is *no;* the day cannot be far off, and the American Institute of Architects will hasten its coming.

And now, still having the floor, I am going to take advantage of my position and introduce another subject. War is on, Mr. Editor, and it is worse than idle for architects to be worrying about status and societies and similar irrelevant matters. Let us cut that sort of thing out with a bang and lend a hand in the terrific struggle. Though we have learned that among high military persons the value of an architect is somewhat underrated, the day is not far off, it may be a matter of months, when the housing of wage earners will force itself and architects to the front. As a prerequisite to maximum output of munitions this is distinctly a war measure which cannot be slighted and the architects are the lads who know, or should know, all about that complex and perplexing problem. Ours is therefore the responsibility not to permit the possibility of failure. Now is the time for us to warn our lords of industries of the impending need, to tell them of the way England has met the problem so that they may take a leaf out of the book of

experience. And when someone tells you another time that the Institute is a dead one, as you infer in your editorial, just take a look around the corner and see what this same A. I. A. is doing along these lines. Pretty good work for a corpse, *n' est-ce pas?* The Institute is to-day doing its "bit" and doing it hard, and whether it remains "unrepresentative" or not, whether it may "lack dignity in its inability to punish recalcitrant members" or not, there will always be a discerning minority of practicing architects which looks to the Institute as the bearer of the torch of progress and a first class source of inspiration.

WM. H. SCHUCHARDT.

Milwaukee, Wis.

The Editors THE AMERICAN ARCHITECT:

Referring to the editorial "A National Organization," in your issue of Dec. 12: For the past nine months it has seemed that an architect was the most useless creature on the face of the United States. Business has dropped as low as last week's temperature, or twelve degrees below zero. Membership in the Public Service League has produced no request for assistance. Services volunteered to the Signal Corps and War Department Construction Corps have been politely but firmly declined eight times, because of the forty-five-year age limit. Interviews with large shipbuilding concerns have resulted in considerate statements that the technical knowledge and executive experience of an architect were not the kind required, and that hurry-up jobs would not allow time for instruction.

While all this is in a degree personal, it serves to show that architects do not fit in with the war requirements established by Government officers and engineers. It also shows that the special qualifications of architects have either been overlooked or are considered to be unimportant by the officials, the political leaders and the business advisers of the Government. If this condition is general throughout the country it is indeed a serious one. We have freely offered our services, but though we can see many opportunities, some obstruction evidently exists, and we are not given an opening.

To be sure, a small amount of architectural assistance has been asked from a few architects, and right cheerfully given, as shown in President Mauran's statement in the last A. I. A. Journal. But in proportion to the whole body of available architects this assistance has been from a regrettably small number of men. At least that was the impression that remained after reading President Mauran's carefully guarded statement.

In your issue of Jan. 2 Mr. Young's able paper clearly sets forth important questions that we should face at once. His presentation is most refreshing because of its frankness. Long before reading his "Jack Johnson" I had felt the need of a right-about face, a change of front among architects. It is evident that our position toward many elements that enter into modern practice must be changed or we perish. Just how this is to be done must be developed by open discussion and a free exchange of opinions. No one mind or locality can accomplish the change. My own interest will be at once aroused by any movement tending to place our profession on a more reasonable and stable basis.

There is no question that the architect's position has been gradually undermined by non-professional interests. This action is not entirely due to the war, though it has been greatly hastened by war conditions. It began years before the present conflict.

As has been stated frequently, it may be that the architects themselves have been at fault. If so, we should put our houses in order at once. Lord knows there is plenty of leisure just now to consider the matter. It is certain that we must be willing to change old methods, to modify obsolete ethical rules, and to devise new ways for conducting architectural practice. The earlier we understand the extra requirements, and the more quickly we find the right solutions of the new problems, the better it will be for all concerned.

While it is not possible here in Providence to obtain a broad view of national conditions, certain local reasons for the undermining action that has been going on may be stated, with reasonable certainty that they are common to other localities, if not to the whole country. These occur to me as follows:

1. Business men appear to have a growing conviction that the architect of to-day is not, to put it briefly, entirely "on to his job."

Design apparently is not included in the question.

Some of the points involved are a lack of ability to solve industrial problems effectively and quickly, a lack of ability to give exact information as to costs and methods of work, a lack of careful and thorough superintendence, and a failure to know and obtain the best results from the different trades. Such practical limitations on the value of architects' services, if it is true that they are the characteristic professional failings, are serious enough. Much study and conference will be necessary to correct them.

2. The occasional failure of prominent architects to live up to the spirit of the established code of ethics has caused much distrust in our own body and suspicion among clients and business men. Revision of the code of ethics and provision for

stronger legal enforcement than censure now gives, should be undertaken.

3. The business world has lost a part of its former faith in the sound judgment, ability and integrity of architects, because of the entrance of an increasing number of badly equipped and unprincipled men into architectural practice. Several cases are known here where architectural escapades have caused great damage to the entire professional body. State license might take care of this destructive element.

4. The growing tendency of both State and city governments to have their own officers do all required work of an architectural character has encouraged the advocates of this system to discredit the reputations of architects in order to develop machine control.

5. The encroachments of the "engineer and architect" into the architect's field usually lowers standards of good planning and design. The resulting over-emphasis of the importance of engineering also tends to put all architectural design into a secondary position.

6. The activities of the "architect and builder," or the "contractor and architect," with plans thrown in if they get the job, certainly does not aid the architect's reputation or increase his fees for small work. Much building of this kind "gets by" without any architectural merit whatever, the client apparently not knowing the difference as long as the price is right.

7. In many cases the need of plans from which permits to build, and low bids can be obtained, seems to be the moving cause for the employment of an architect. He is then considered to be a mixture of necessity and extravagance.

8. The ethics of the profession do not appeal to or interest the average business man. This average man is apt to look upon the Institute as a form of trade union, or combination for selfish interests, which with admirable general phrases covers up the real aims of the national organization. Not taking much stock in ethics himself, he believes that the code of ethics is a bluff.

I am fully aware that all this seems to be pessimistic to the last degree, and that it only partially succeeds in giving reasons why things should be changed and improved. It is not an imaginary tale, however, but a summary of hard experiences.

On the other hand, if it were to the purpose, much might be said about the considerate and well-informed clients, the charming people for whom it is a constantly recurring pleasure to try to do one's best. May their days be long and their number increase.

It seems to me that complete national support for the ideals for which the Institute now stands is greatly to be desired.

But far more important than Institute organization and membership are the new problems that lie before us.

As in problems in military strategy we need clear and definite estimates of the situation. The objects and ideals to be attained must be concisely stated. All obstructions lying in the way must be clearly indicated. And, finally, the ways in which each and every obstruction may be overcome must be carefully worked out and understood by all.

If our strategic solution of these new problems proves to be weak or defective, then, just as surely as in actual war, we will become meat for our friend the enemy.

Go to it, then, with good heart.

ELEAZER B. HOMER.

Providence, R. I.

The Editors THE AMERICAN ARCHITECT:

I have read with considerable interest your editorial in the December 12, 1917, issue of your valuable paper, treating on the subject of a national organization of architects that would be truly representative of the profession and able to exert a beneficent influence throughout the entire country.

I truly coincide with what you state, and believe the time is opportune for bringing about the consummation of such an organization. Your valuable publication can do a great work in this movement, and I therefore gladly respond with my endorsement as above.

Yours respectfully,

A. WARREN GOULD, President,
Washington State Society of Architects.

The Editors THE AMERICAN ARCHITECT:

In answer to yours of Dec. 12, The American Institute of Architects I recognize as the official body of the profession of architecture in the United States. To the best of my judgment, it has the indorsement of, and has as members, 90 per cent of the architects in good standing in the United States, and I see no reason why any other body should be organized.

The tendency of this day is to increase the number of organizations without increasing efficiency. I think one parent organization is all that is necessary and that one can give attention to, and I am utterly opposed to the suggestion you make in your editorial of Dec. 12. I am content with the present organization of the American Institute of Architects.

Yours truly,

OCTAVIUS MORGAN, Architect.

Los Angeles, Cal.

Illustrations

Converse Memorial Library, Amherst College, Amherst, Mass.

McKim, Mead & White, *Architects*

THIS library was made possible through the gift by Edward Cogswell Converse of $250,000 for the purpose of erecting a building that would be a memorial of his brother, James B. Converse, who was a member of the class of 1867. It is located on the eastern side of the Common on the site of Hitchcock Hall, known formerly as the Boltwood Mansion. The base, steps and ramps are of pink granite and the main walls of brick. The colonnade is of buff limestone, as are the cornice, architraves and balustrades.

The interior is constructed with steel beams and columns, reinforced cinder concrete floor slabs, brick bearing walls. The partitions are of 4" terra cotta tile, plastered. The main stairway has cast iron strings and risers, with marble treads and landings.

In the public spaces the floors are Carrara marble mosaic, with marble inserts and borders.

The reading room and librarian's department have cork floors—the other department room floors are laid with maple.

The stock room has a thoroughly modern equipment. The floors are of marble and there is an electric book lift. The stack has a capacity of 239,000 volumes, while the reading room shelves provide space for approximately 7,200 volumes.

A somewhat unusual feature is the large space given over to department rooms. The entire third floor and a large part of the second is devoted to departmental use.

Merced Union High School Group

Allison & Allison, *Architects*

THIS group includes four buildings, Administration, Domestic Arts, Manual Arts and Commercial, and Gymnasium buildings.

The central or Administration building, two stories high, is 210 feet front by 162 feet in depth, and houses the executive offices, an auditorium seating one thousand, with large stage completely equipped and provided with a fireproof moving picture booth.

Adjacent to the executive offices are rest rooms for teachers and students. A study hall seating one hundred and twenty-five, and a Library with stacks and book-cases, which added to those of the Study hall will accommodate ten thousand volumes.

The Science department is on the second story and includes Physics, Chemistry, and Biology, together with lecture rooms and a roof garden for experimental purposes in the study of Biology and Botany, while the Arts department and Music rooms are in the north wing where north light is available.

Locker rooms for five hundred students are provided on main first floor near the executive offices. Nine additional regulation class rooms are planned in this building. The main toilet rooms for boys and girls are located at the rear of auditorium wing, and are accessible from main buildings by covered cloisters.

A Roman room is located in the dome, designed and furnished after the Roman fashion, with a view to creating a proper atmosphere for the study of ancient languages.

The Domestic Arts building to the left, in plan is 159 feet long by 60 feet wide, and includes sewing and cooking departments, with small apartment for instructions in housekeeping. The Cafeteria with accommodations and service for over one hundred students is in the west wing of this building. The necessity for the Cafeteria is obvious when one considers that the school district is twenty miles in length and many students come from a long distance.

The Manual Arts and Commercial building to the right of the group is of similar dimensions, and accommodates the Commercial department in all its branches, with Commercial classroom, instructor's office and supply room, including a Banking department.

In the rear of the building is planned a cabinet shop, mill or machine room, lumber room, finishing room, forge room, practical mechanic's room, instructor's office, and wash and locker rooms for the boys.

The fourth building, the Gymnasium, is provided with maple floor for dancing and other social functions. At one end of the Gymnasium marble showers and lockers are arranged for girls, together with rest room and room for physical instructor. Similar accommodations are provided in the other end of the building for boys.

A Grandstand to seat four hundred is planned on the north side of this building overlooking the athletic field.

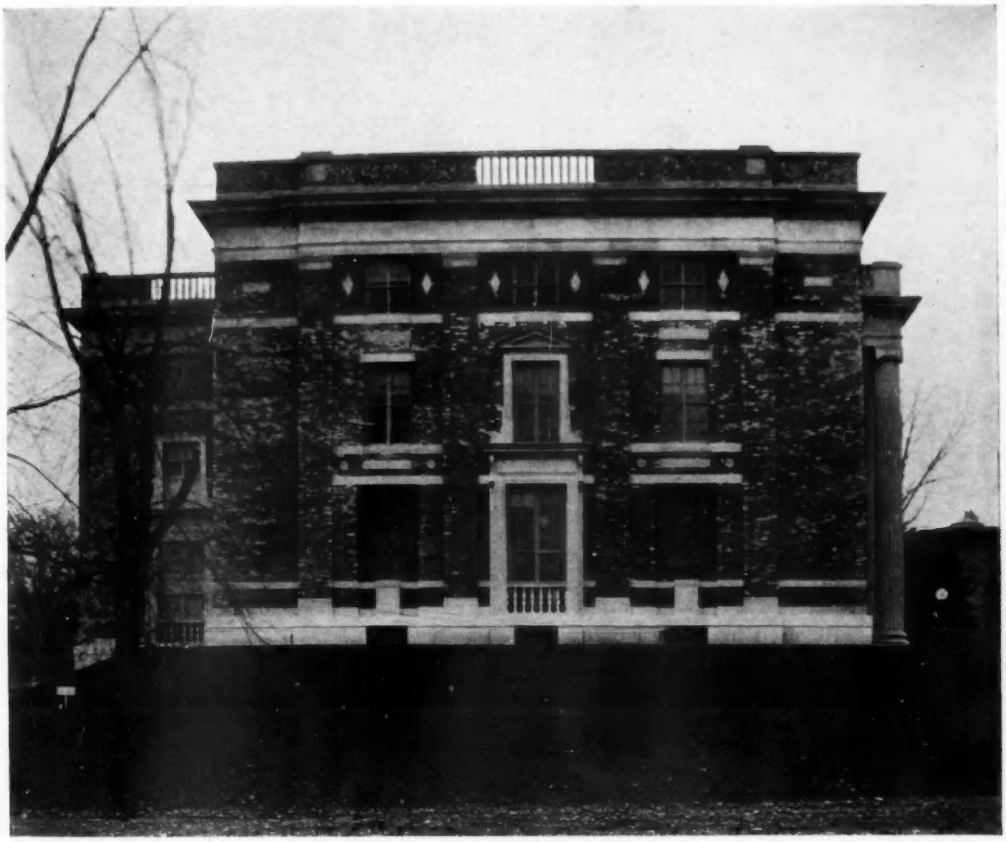
The buildings throughout will be heated by low pressure steam heat forced to the various rooms by motor driven fans. All of the air used will be drawn through water spray type air washers.

The buildings will be constructed of reinforced concrete on brick. All halls, corridors, and stairways will be reinforced concrete, and all roofs red burned clay tile.

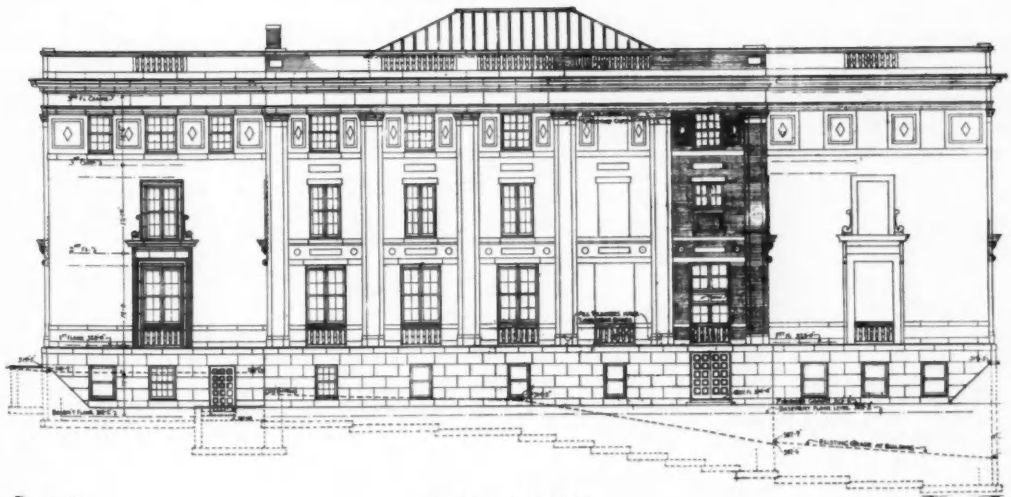
PLATE 39

CONVERSE MEMORIAL LIBRARY, AMHERST COLLEGE, AMHERST, MASS.

McKIM, MEAD & WHITE, *ARCHITECTS*



NORTH ELEVATION



REAR ELEVATION

PLATE 40

CONVERSE MEMORIAL LIBRARY, AMHERST COLLEGE, AMHERST, MASS.

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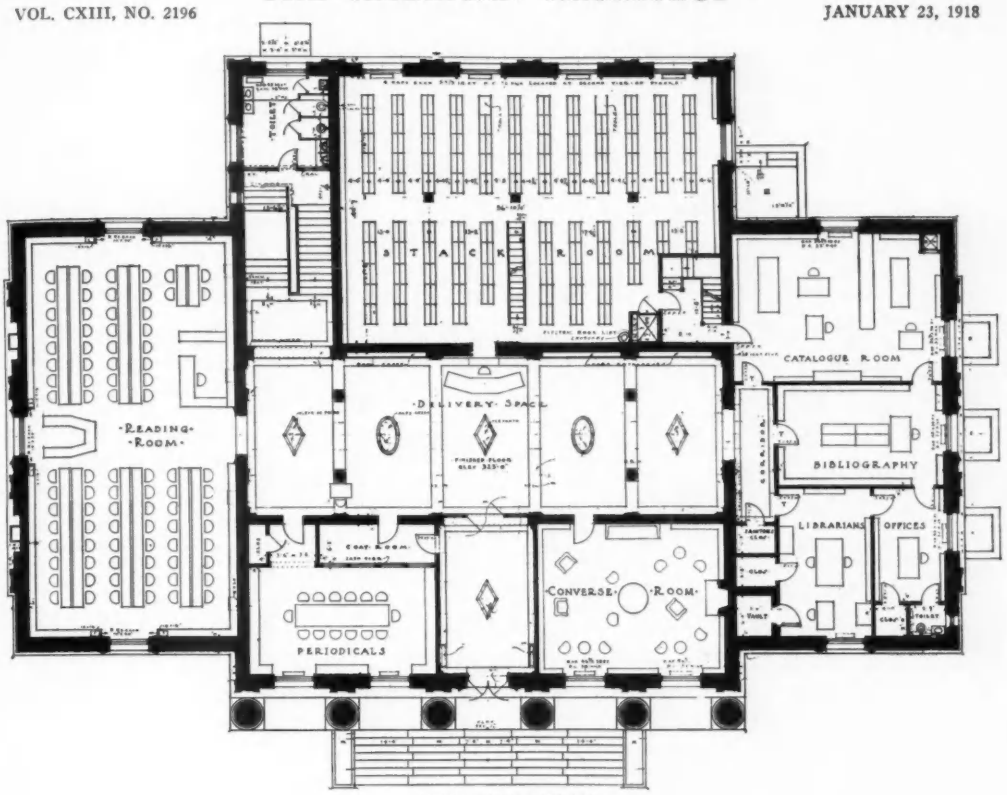
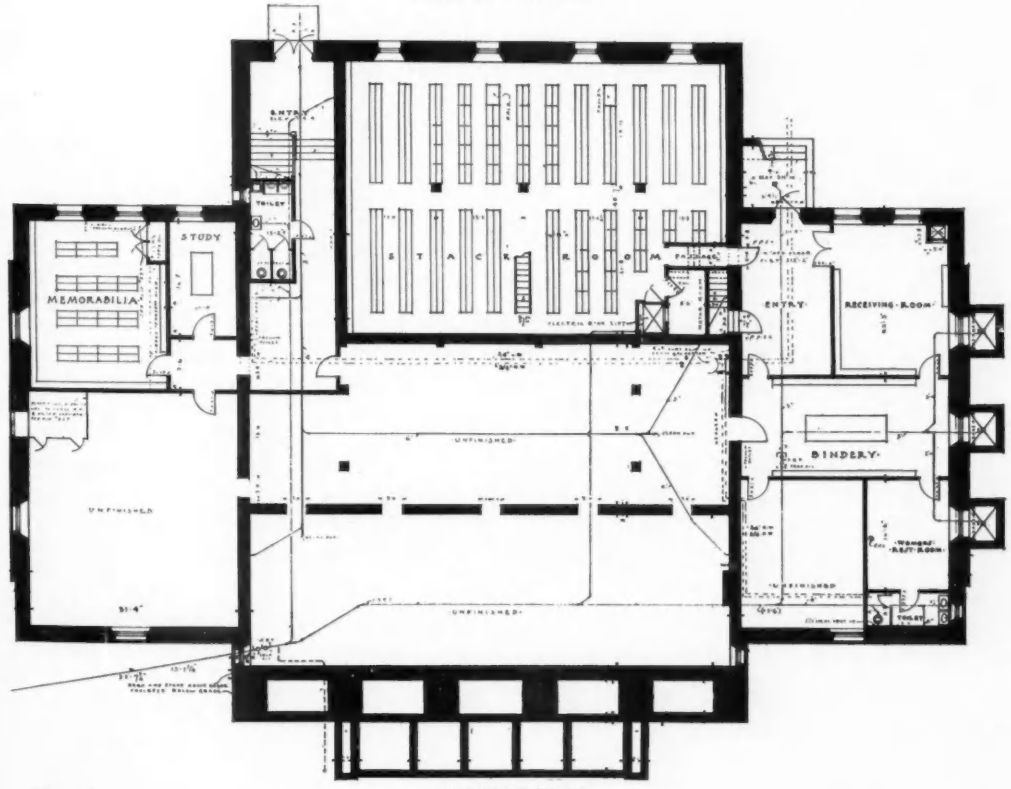


FIRST FLOOR PLAN



BASEMENT PLAN

PLATE 41

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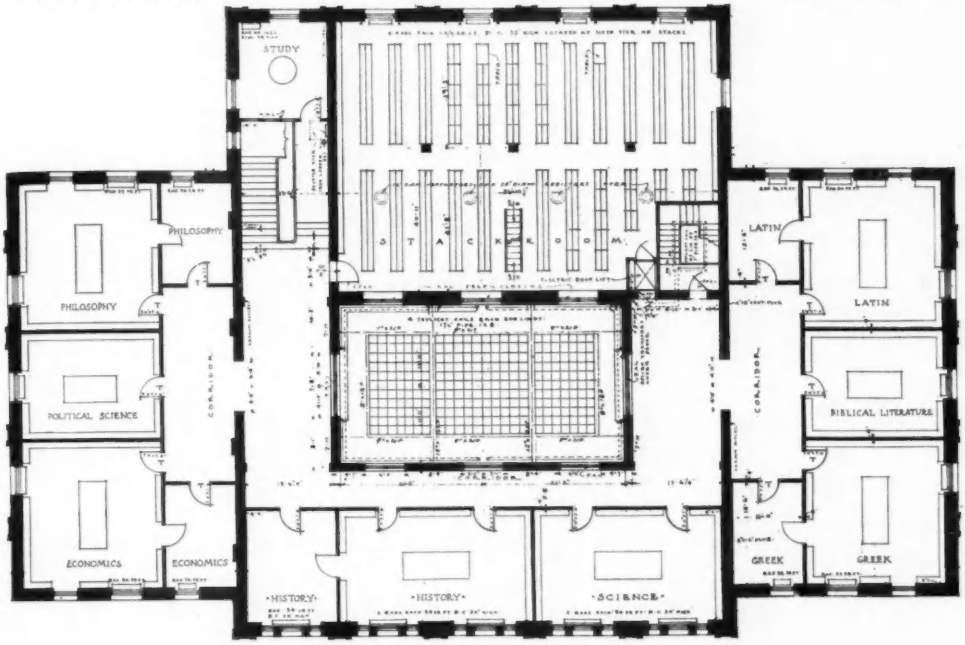
McKIM, MEAD & WHITE, *ARCHITECTS*

XUM



THIRD FLOOR PLAN

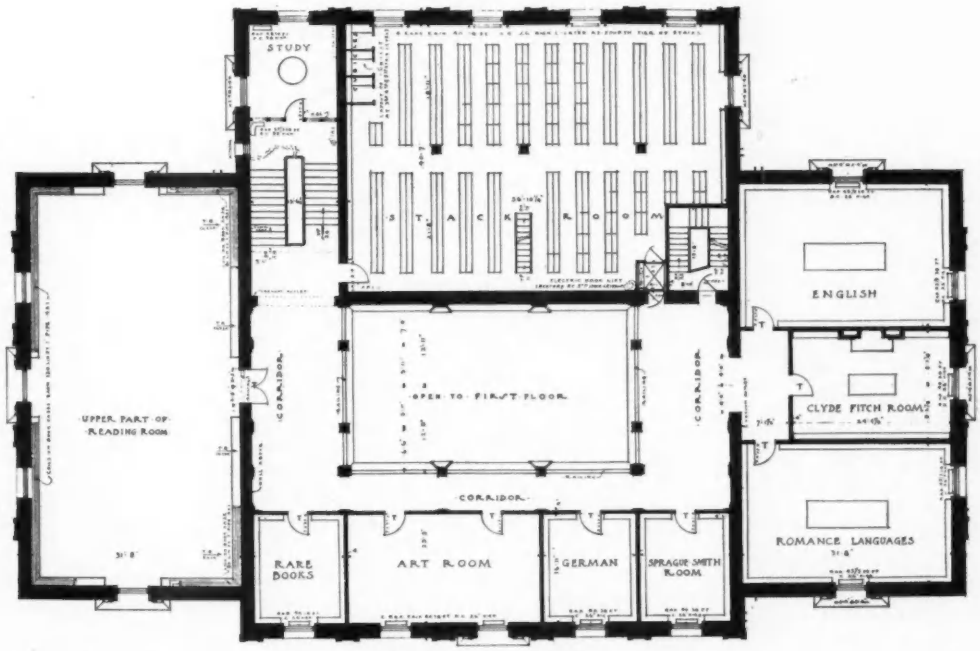


PLATE 42 SECOND FLOOR PLAN

CONVERSE MEMORIAL LIBRARY, AMHERST COLLEGE, AMHERST, MASS.

McKIM, MEAD & WHITE, *ARCHITECTS*

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PLATE 43 DELIVERY SPACE

CONVERSE MEMORIAL LIBRARY, AMHERST COLLEGE, AMHERST, MASS.

McKIM, MEAD & WHITE, *ARCHITECTS*

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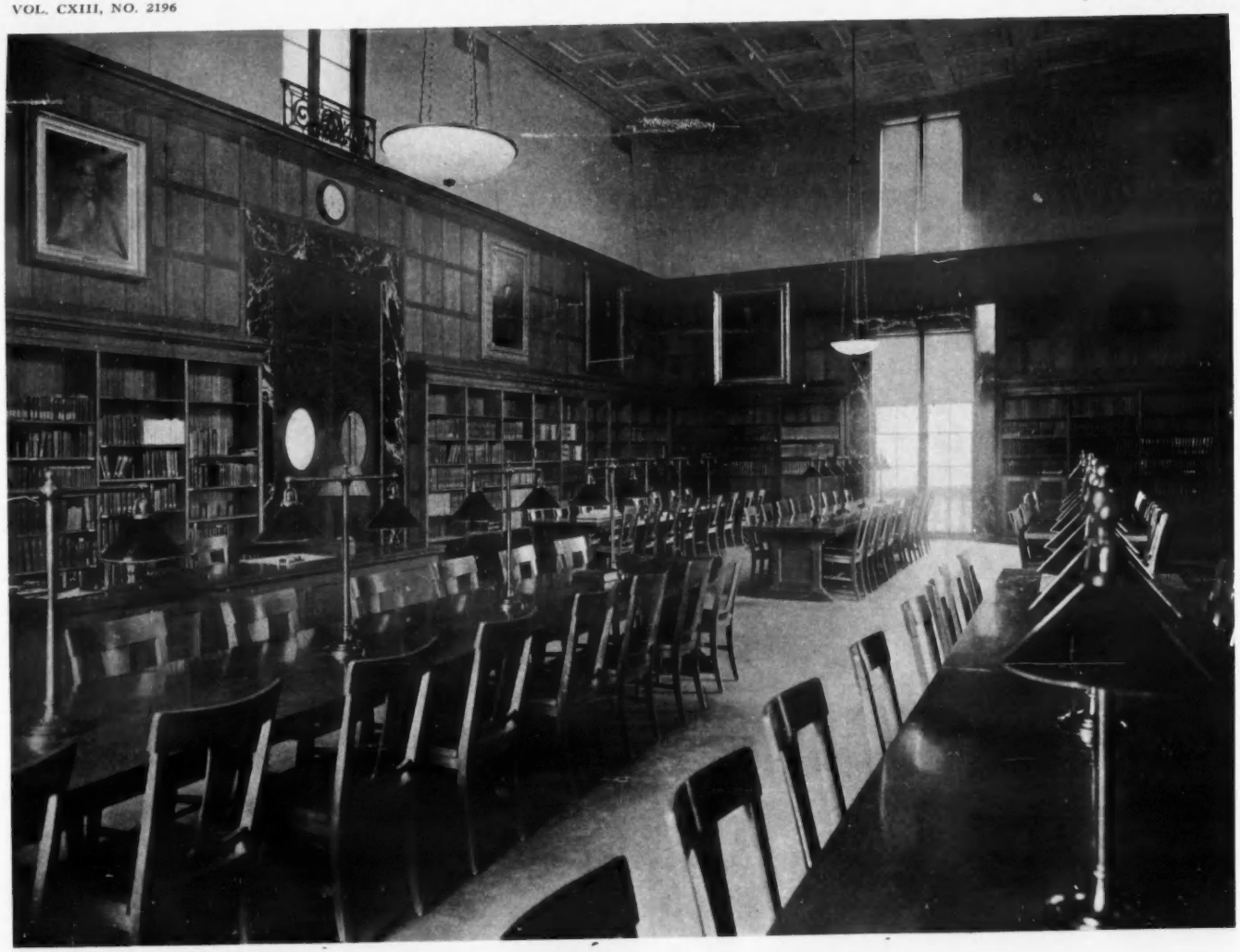


PLATE 44

MAIN READING ROOM

CONVERSE MEMORIAL LIBRARY, AMHERST COLLEGE, AMHERST, MASS.

McKIM, MEAD & WHITE, *ARCHITECTS*

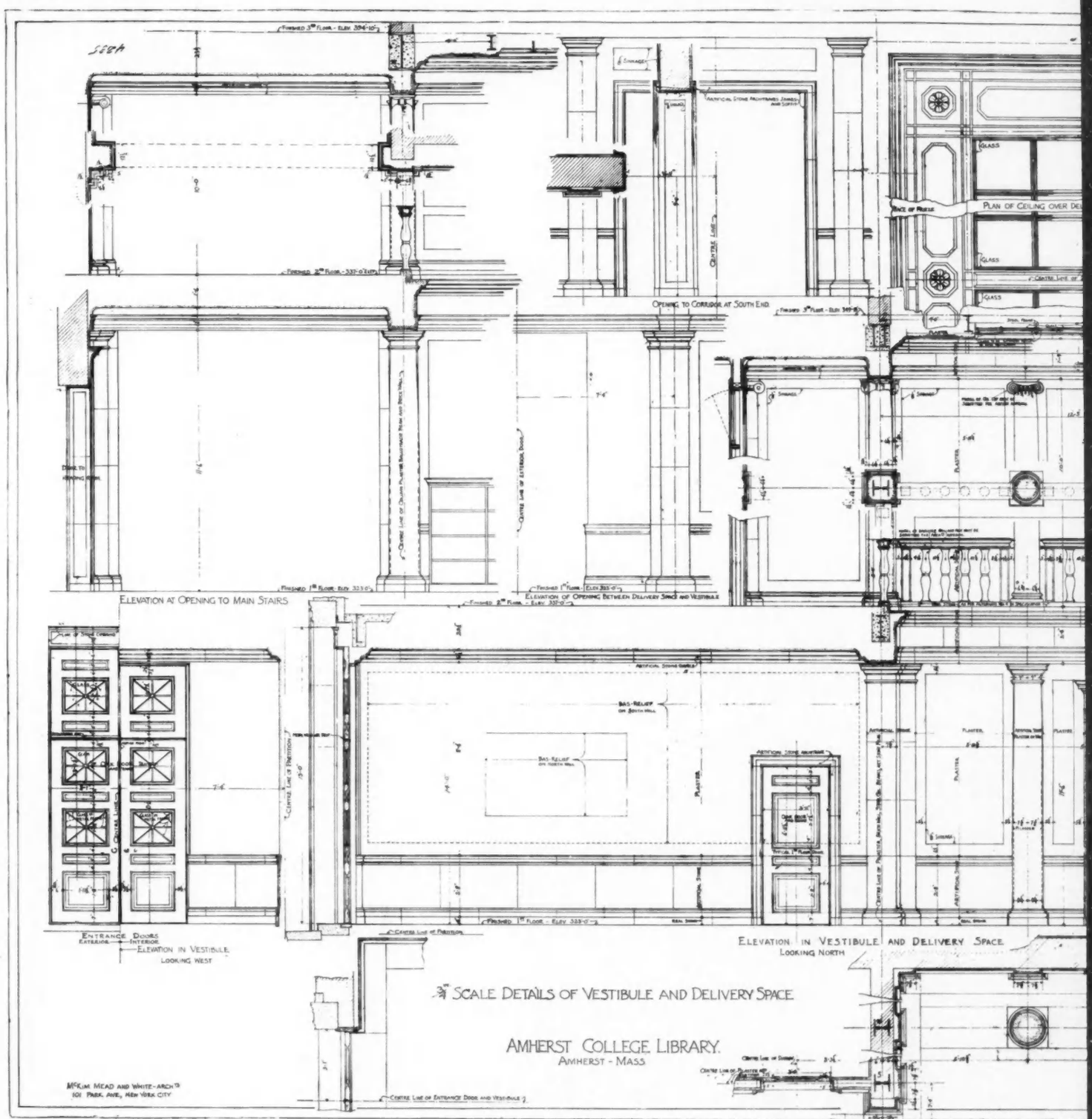
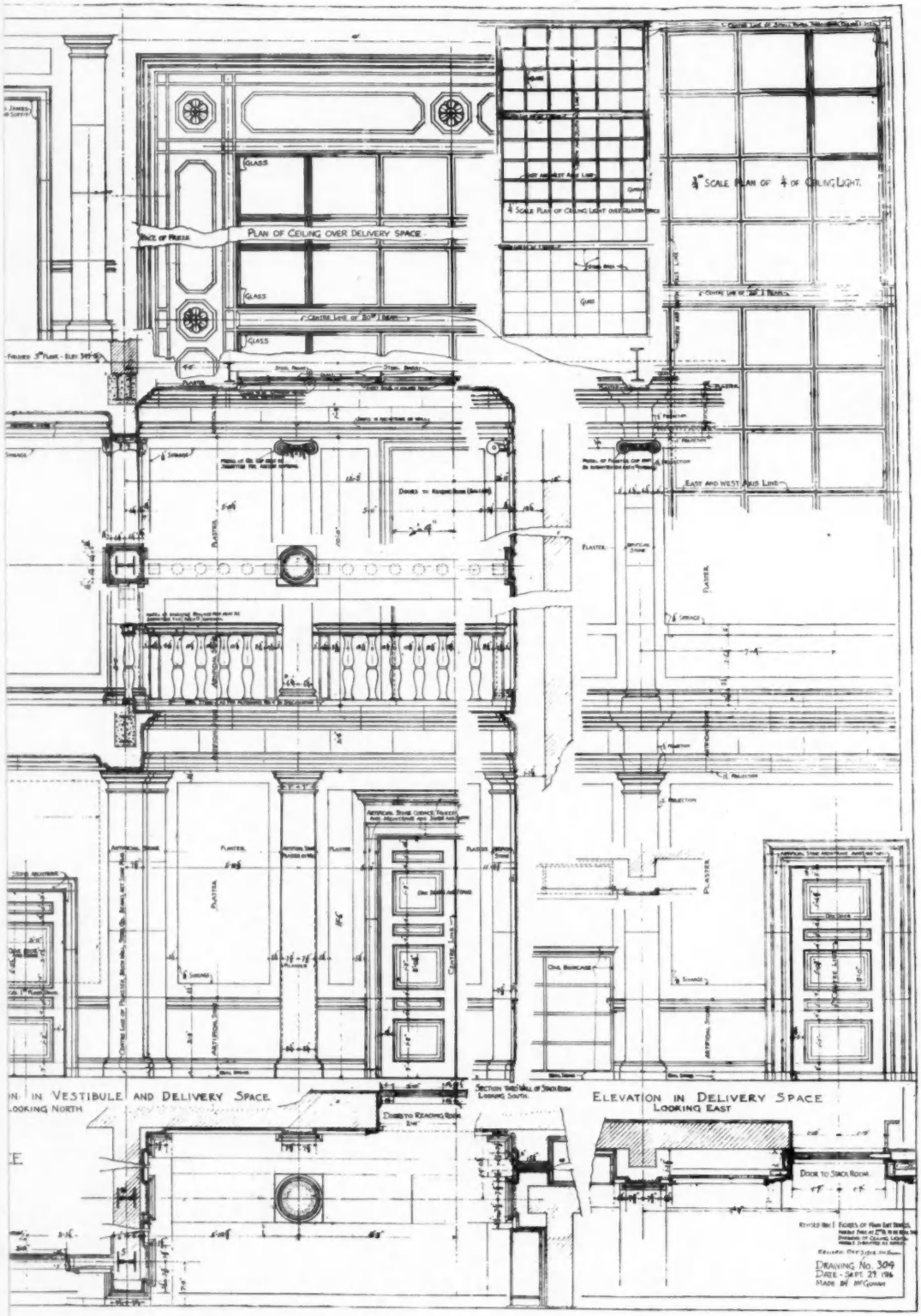

SEDA
Opening to Corridor at South End
Elevation at Opening to Main Stairs
Elevation of Opening Between Delivery Space and Vestibule
Entrance Doors
Exterior
Interior
Elevation in Vestibule
Looking West
Elevation in Vestibule and Delivery Space
Looking North
3/4" Scale Details of Vestibule and Delivery Space
Amherst College Library.
Amherst - Mass
McKim Mead and White - Archts
101 Park Ave., New York City

PLATE 45

CONVERSE MEMORIAL LIBRARY, AMHERST COLLEGE, AMHERST, MA

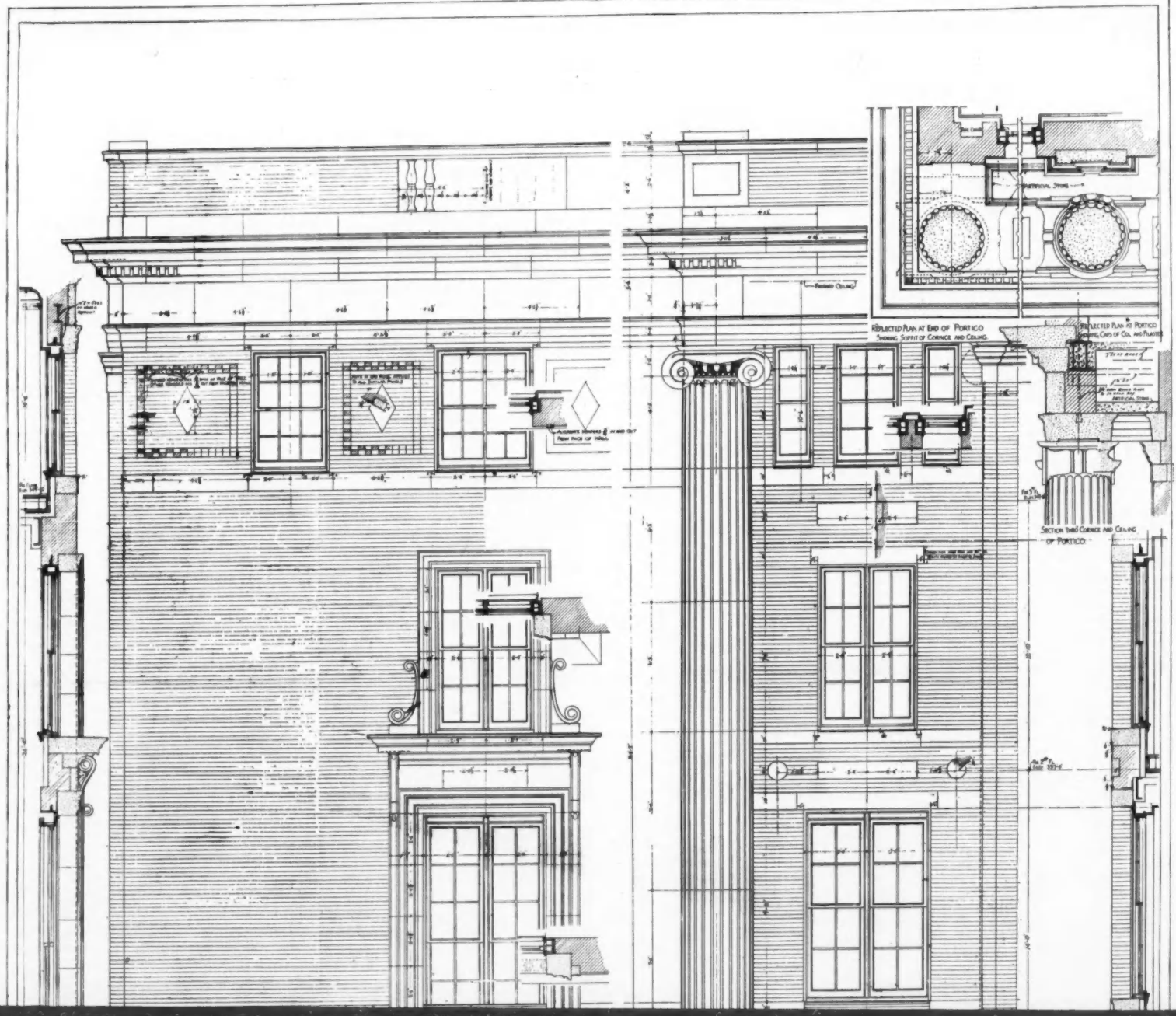
McKIM, MEAD & WHITE, *ARCHITECTS*

XUM



MHERST COLLEGE, AMHERST, MASS.

HITE, *ARCHITECTS*


REFLECTED PLAN AT END OF PORTICO
SHOWING SOFFIT OF CORNICE AND CEILING
REFLECTED PLAN AT PORTICO
SECTION THRU CORNICE AND CEILING
OF PORTICO

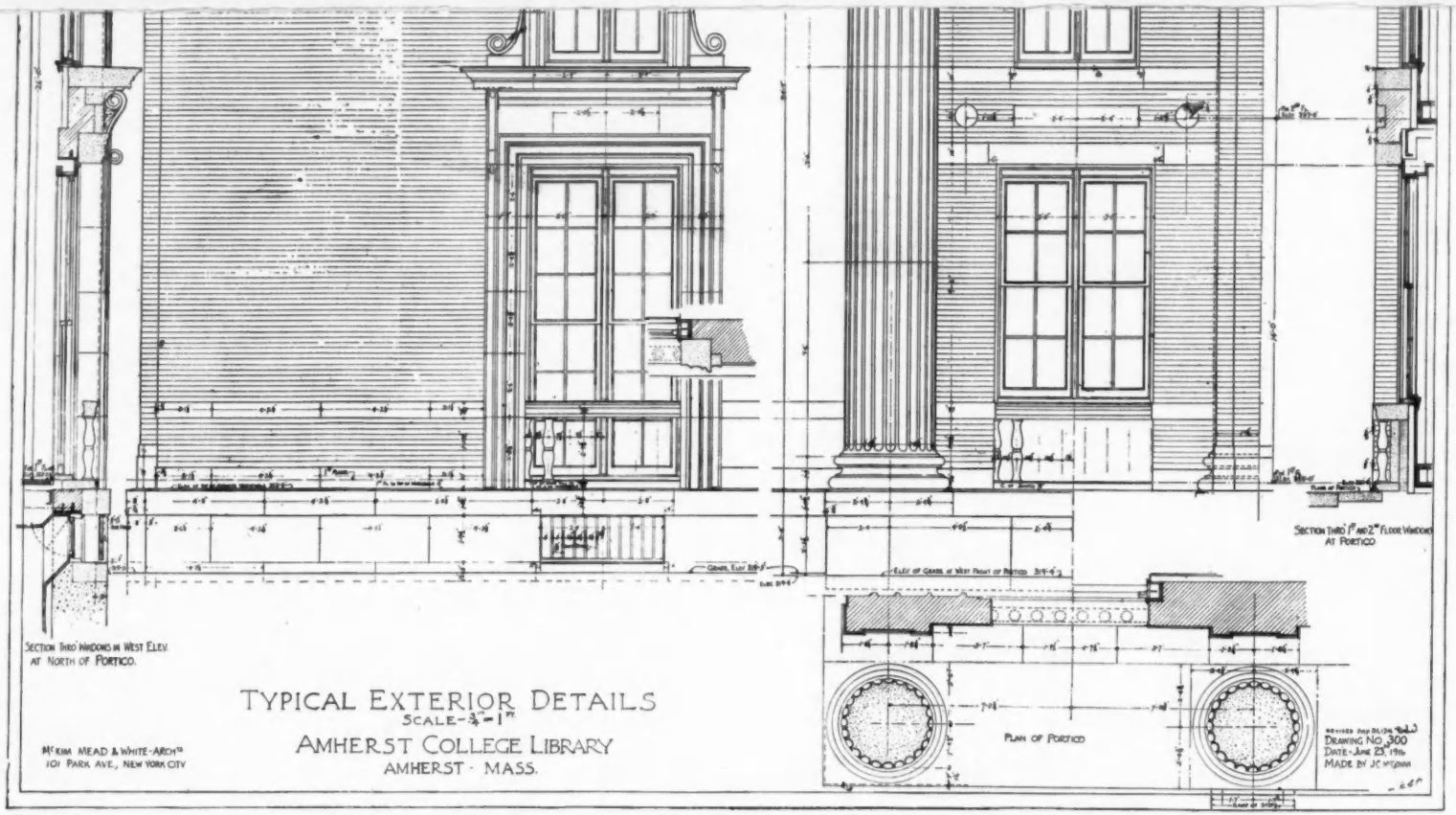

SECTION THRO WINDOWS IN WEST ELEV. AT NORTH OF PORTICO.
SECTION THRO 1ST AND 2ND FLOOR WINDOWS AT PORTICO
PLAN OF PORTICO
TYPICAL EXTERIOR DETAILS
SCALE-3/32"-1'
AMHERST COLLEGE LIBRARY
AMHERST · MASS.
McKIM MEAD & WHITE-ARCHTS
101 PARK AVE., NEW YORK CITY
DRAWING NO. 300
DATE-JUNE 23, 1916
MADE BY JC

PLATE 46

CONVERSE MEMORIAL LIBRARY, AMHERST COLLEGE, AMHERST, MASS.

McKIM, MEAD & WHITE, *ARCHITECTS*

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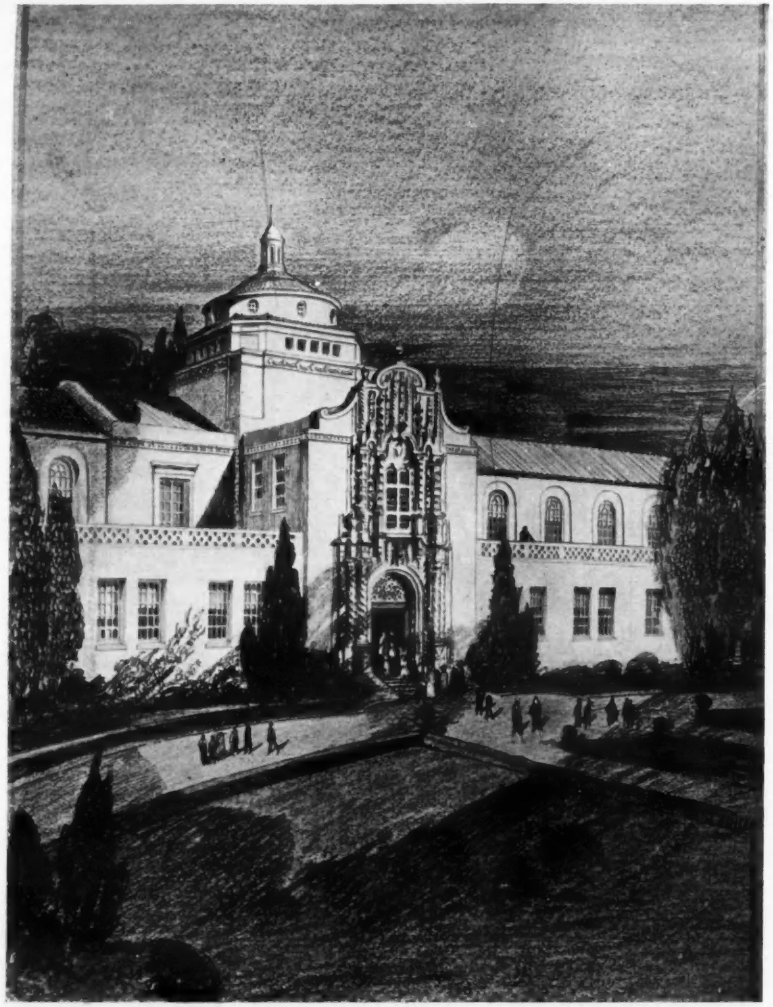

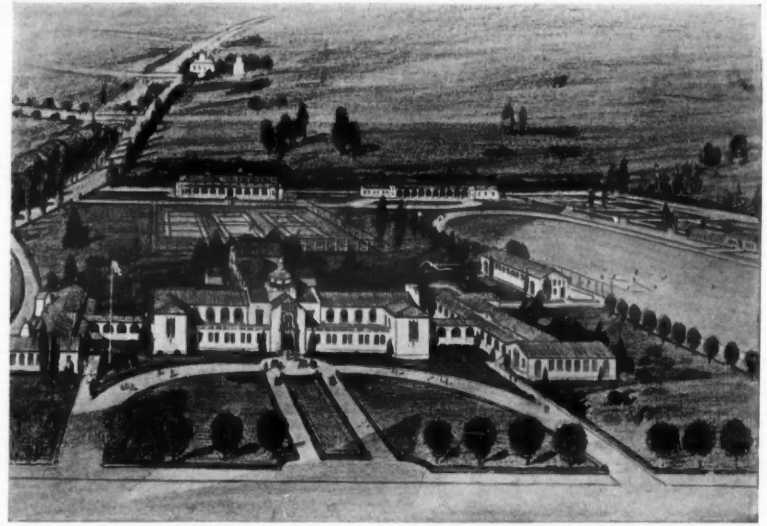

MERCED UNION HIGH SCHOOL
MERCED, CAL.

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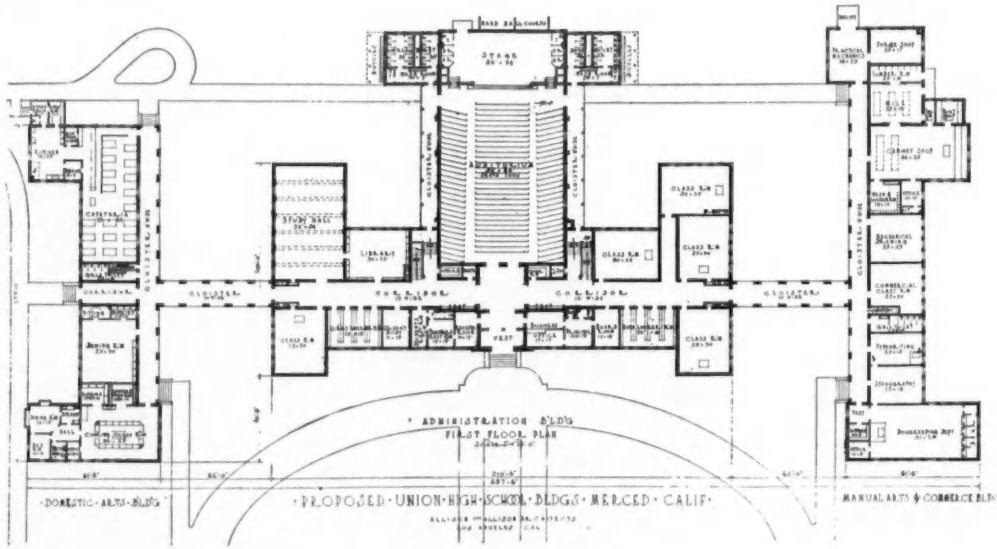
ALLISON & ALLISON, *ARCHITECTS*

PLATE 47



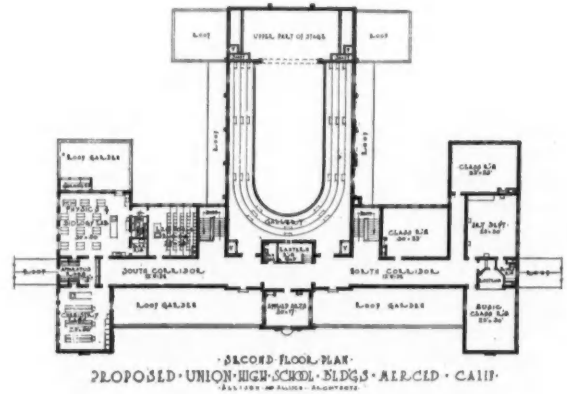


PLATE 48

MERCED UNION HIGH SCHOOL, MERCED, CAL.

ALLISON & ALLISON, *ARCHITECTS*

Price-fixing Bill Ready

"Price-fixing legislation, urged by President Wilson in his recent message to Congress," says the New York *Tribune,* in its issue for Jan. 2, "probably will be given early consideration in the Senate.

"Senator Pomerene has pending a bill authorizing the President to fix prices for steel and iron on which the Interstate Commerce Commission already has held hearings. An amendment to extend the provisions to farm implements has been suggested, and members of the committee are said to regard it favorably. Steel and iron prices now are fixed by an agreement between the producers and the War Trade Board, approved by the President."

Improvement in Farm Buildings

A Western paper states that the year 1918 will see an unprecedented activity in the building of new farm structures. Farmers are using some of their "war profits" in the construction of better homes and farm buildings, these structures being one of the best evidences of the country's prosperity. The publisher of *Successful Farming* says:

"More new farm houses and barns are being planned now than for years. This is because of farm prosperity, increased acreage, big crops and high prices for 1917. I believe the present time offers one of the greatest business opportunities in farming districts that building material firms have ever had."

Architectural Innovation at New Mexico University

The State University of New Mexico in the construction of their buildings has made "a violent, and in a large measure a successful, attempt to achieve distinction and originality." No college has structures of so unique a type, for they stand as a faithful copy of an Indian pueblo.

A pueblo is a community house to shelter an entire Indian tribe, this form of architecture being peculiar to the State of New Mexico, where it originated in pre-Columbian times. The pueblos, structures built of sun-dried mud, were brought forth by necessity and were of slow growth. In striving to adapt this particular style of building to modern uses an attempt has been made to produce a type of building that at least is not exotic, while the use of stucco in place of the mud of the primitive pueblo is especially ingenious. "The installation of this architecture has justified itself by creating a group of buildings that is something more than an architectural curiosity. The square, squat, flat-topped gray structures look westward and blend with the raw immensity and the glare of that particular environment as only an architecture born of the soil could hope to do."

Government Control of Railroads

Under the new system the Government now has almost unlimited control over 250,000 miles of steam railroads, but the public cannot expect an immediate improvement in existing conditions. The power of the Director General, however, to route tonnage as though all of the lines were owned by a single system, to use fewer passenger trains, and to utilize parallel and hitherto competing roads, promises excellent results. "On the whole the experiment has so much to commend it that its advantages far outweigh the numerous objections that suggest themselves to those who would have had all arrangements worked out before any change in control was effected."

Report of New York's Building Department for 1917

The Building Department of New York in comparing the conditions in building affairs in the year 1916 with those of 1917 explains the decline in construction plans, for the latter as due to the zoning laws and the more acute conditions in the building markets.

The classes however which showed an improvement over 1916 were particularly stables and garages. Public buildings (municipal) also showed an increase, as well as church building projects. Comparative statements of the Richmond Bureau of Buildings give the principal items of 1917 as dwellings, manufactories and workshops — there being dwellings planned at a cost of $1,500,000 and eighty-five manufactories at a cost of $1,700,000.

There are in contemplation, but not yet filed, $10,000,000 in factory buildings for the year 1918, while it is known that plans are being drawn for 5000 new dwellings.

Newark's Opportunity

The city of Newark, in planning with government aid, for the housing of workers in public and private plants, has an exceptional opportunity. The buildings which are to be erected should be, and are expected to be, "homes in which the workmen and their families will desire to live, homes in which the community will be gratified to have them live.

"A city is not composed of its buildings alone,

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but, primarily, of its citizens, and modern experience has gone to show that housing has a very great, even if not determining, effect upon the character and quality of the citizenship. Beyond doubt, the housing committee is going to recognize this fact just so far as its financial resources and the time at its disposal permit."

In building a new and greater city, Newark, through its housing committee, "has really a magnificent opportunity to show what can be done. If it is replied that the emergency limits the opportunity, it is also true that the emergency created the opportunity."

Building Plans of the New Board of Education of New York

In the policy of the new Board of Education several interesting features are outlined. Among these is the program of building at least ten new schoolhouses from existing funds, and others, on economical plans, as speedily as possible, and as the present crowded conditions in the schools make necessary.

Building Plans for St. Louis

The city of St. Louis is looking forward to a year of unprecedented development along building lines, especially as a great number of dwellings will unquestionably be needed to satisfy the needs of various industries. It is stated that vacant property of all kinds in St. Louis was reduced by 50 per cent during the past year, the greater part of this reduction representing home property, or apartment houses, where an improvement in conditions was particularly evidenced. Builders have decided that, in practically all cases, they should no longer delay their projects.

List of National Holidays

A booklet which is believed to be the first attempt to compile a complete list of the holidays of all nations has been issued by the Guaranty Trust Company of New York. According to this catalog, 261 holidays will be observed this year by the ninety-seven nations or dependencies listed, not all of these being legal holidays, however. Fifty-four of these holidays will be observed in the United States, their observation being a matter for each state to determine for itself. It is noted that this country has no national legal holiday, although New Year's Day, Washington's Birthday, Independence Day and Thanksgiving Day are observed by all the states and by the District of Columbia.

The compilation of this booklet was necessary for those doing an international business, and was designed particularly for the use of business men. "A knowledge of what days are closed to business in any given country is highly important in carrying on international trade."

War Plants in the Middle West

According to a statement in the New York *Evening Post* the War Department will, in the future, erect its plants for war-material production entirely in the Middle West. This is due, it is said, to congestion in the East, and the advisability of locating plants at least 200 miles from the Atlantic seaboard.

Aircraft production especially is being developed in the Middle West, where factories are being placed in positions easily accessible to the training schools for aviators of the West and South.

King Alfonso's Palace Burns

News received from Madrid, Spain, on Jan. 2, is reported by the New York *Times* as follows:

"Fire started in the Royal Palace at La Granja this morning, and before it could be checked it had spread to a nearby church, which, with the palace, was destroyed. Very few of the valuable pictures and art objects in the palace were saved. The loss will aggregate several millions of dollars."

Fire Preventives

The Cincinnati Fire Underwriters' Association has requested all architects and contractors of Hamilton County, Ohio, to keep a close supervision of new homes under construction, or that are being remodeled, in order to decrease the number of fires caused by imperfect flues. Many of the recent Cincinnati fires, it is thought, are due to these defective flues, and the Building Commissioner of the city is to see to it that in the future proper precautions are taken.

City-planning Expert Dies

Charles Mulford Robinson, of Rochester, N. Y., widely known in England and in America as a city-planning expert, died suddenly in Albany on the last day of the year. Mr. Robinson held the first professorship of civic design in this country, at the University of Illinois, and had been consulted in making plans for many American cities.

He was the organizer of the National Alliance of Civic Organizations, and in October, 1916, was elected an honorary member of the Council for the Town Planning Institute of England. In this latter capacity he shared with Frederic Law Olmsted the distinction of holding the only American honorary membership.

American Association for Advancement of Science

The seventeenth annual convention of the American Association for the Advancement of Science was held in Pittsburgh, Pa., Dec. 29-31. The topics discussed were mainly those that had direct relation to the war.

More than one thousand delegates were present. Thirty other associations, affiliated with the main association, were also meeting in Pittsburgh at the same time.

Great Advance in Production of Manganese

The New York *Evening Post*, in its issue of Jan. 5, and under the heading "One Result of War Necessity," states:

"When the war began, the fright over scarcity of manganese for making iron and steel was one incident of the day. In 1914, only 2635 tons were produced in the United States, and the foreign supply was largely cut off. But in 1915 this country produced 9709 tons; the output rose in 1916 to 26,996 tons; the estimate of the Geological Survey for 1917 is 122,275, and for 1918 it is believed that from 175,000 to 200,000 tons will be turned out, or nearly one-third of the trade's total demand."

Architectural League Exhibition

The coming exhibition of the Architectural League of New York City has been referred to as follows:

"The thirty-third annual exhibition of the League, now being organized for February, 1918, is to be devoted especially to the building crafts and the arts employed in making American homes more beautiful and livable.

"A joint committee, including architects, painters, sculptors, manufacturers, and building contractors, has been formed to collaborate with the League's annual exhibition committee to aid particularly in securing representative exhibits from American manufacturers. This exhibition will mark an epoch in the history of our national development, as it will be the first occasion on which the products of our varied manufactories will receive recognition, placing them on even footing with sculpture and painting. The great enthusiasm felt for this new project by the architects, painters and sculptors constituting the membership of the Architectural League of New York is clearly indicated by the elaborate setting now being prepared at the Fine Arts Building to properly display the many and varied products of the building crafts. A general scheme of decoration for the exhibition has been skillfully rendered in water color by Howard Greeley."

Plans for Rebuilding Halifax

Thomas Adams, town planning advisor to the Commission of Conservation of Canada, is now in Halifax considering ways and means for the effective laying out of the city. As representing a base of great strategic value, and with one of the finest harbors in the world, the capital of Nova Scotia will, when rebuilt, enter upon a new era of importance.

New Public Service Commissioners Appointed

In order to fill one of the vacancies caused by the resignations of members who have joined the United States Army, Governor Whitman has appointed Mr. F. J. H. Kracke to serve as one of the New York City Public Service Commissioners. Mr. Kracke is a former commissioner of Plant and Structures of New York City.

Personal

Edwards & Sayward, architects, announce that on and after Jan. 1, 1918, their offices will be located at 609 Chamber of Commerce Building, Atlanta, Ga.

Ralph B. Bencker has been admitted as a partner in the firm of Price & McLanahan, architects, 1418 Walnut Street, Philadelphia.

Emilio Levy, architect, has removed from 56 West Forty-fifth Street to 331 Madison Avenue, New York City.

Olaf Z. Cervin announces the admission to partnership of Benjamin Albert Horn for the practice of architecture under the firm name of Cervin & Horn, Architects. Offices at 310 Safety Building, Rock Island, Ill.

War Time Conditions and Efficiency in Design

THE real cost of a building is measured by the net income it produces. Considered in this way, it is relatively possible to build as cheaply to-day as at any time during the past decade.

In this statement we do not include churches and educational buildings, as their value is measured in benefits to humanity; municipal, county, state and governmental buildings have a value as compared with equally efficient rented quarters; jails, hospitals and asylums have a value computed in relieving human weakness and misfortune; individual houses have a value gauged in terms of personal comfort and sentimental attachments.

This statement does apply to places of residence occupied by tenants, hotels, office buildings, warehouses and manufacturing plants.

It is freely admitted that there has been a marked increase in the cost of materials and labor. In some localities the price of real estate has been lowered through local causes, but the value is intact. Under these conditions the total cost of the investment is lowered, aiding in cheap construction. But in some centers of business activity such a condition does not obtain. Under these conditions we do not find prospective builders waiting for real estate to become less valuable, because they know that such a thing will not happen. Yet these same persons will hesitate to build, owing to the fear of the high cost of material and labor. Labor will never become cheaper, because it is not its habit, and it is too well organized. Some materials have become cheaper during the past few months, due to local conditions, but on the whole the low costs that obtained a few years ago will never return.

It then follows that when a building is so designed that its net income is a correct percentage of its cost, this cost is not excessive and may be termed cheap. Such a design is based on two factors. One is that the materials be so selected and used with such working stresses that they do a maximum safe service. The cost of the material compared with its working value determines the kind to be used.

Unfortunately in some cities the working stresses regulated by building codes are entirely too low, and in this case it behooves architects and engineers to secure a rational increase in these stresses as a matter of conservation of material and money. It is also necessary to know the materials intimately and use them to best advantage and intelligently. This involves study and work.

The other factor is the disposal of space and contents.

In residential buildings occupied by tenants, waste space must be curtailed in the item of story heights, proportion of rooms, entrance and means of exit, non-essentials as to elaboration and adornments. But everything required for perfect sanitation, daylight, ventilation and other necessaries for human habitation must be conserved. These details must vary with the diverse climatic conditions found in this country. In other words, locality will govern to a great extent. It may be necessary for people to rearrange their methods of living and dispense with some traditional and supposed needs. Remember that Americans are an extremely adaptable people.

In hotels there are now existing millions of cubic feet of contents that earn nothing, but are an expense in light, heat and furnishings. This is found in excessively large and ornate lobbies and approaches. The modern hotel has reduced the guest room or cubicle to a bath and toilet room and a sufficient space for sleeping accommodations. Such a room is not looked upon as a reception room, a parlor or even a living room. It is simply a place in which one sleeps as a physical and mental necessity. Light and ventilation with perfect sanitation are essential. The objective in this kind of a building is to make every cubic foot of contents yield its maximum revenue.

In office buildings the objective is to furnish adequate means for entrance and exit, elevator service, and like utilities which are governed by ease of locomotion and safety to life. Large and elaborate entrance lobbies, while impressive from an architectural standpoint, do not produce a return in revenue.

The other and very important purpose is to furnish space for business occupancy. The necessaries for such use are daylight and ventilation, primarily, with lavatories, storage vaults, wardrobes, etc. The office proper must have 100 per cent daylight, as a dark office is an expense in artificial light and reduced rentals. To obtain this 100 per cent daylight condition involves the disposition and shape of the floor areas, courts, light shafts and especially the size and shape of the windows.

It may be necessary to modify the accepted ideas for the architectural design and treatment of such a building as will meet with these necessary conditions. Such a modification of design can be made without sacrificing architectural effect and we can

reasonably expect a type of building to be evolved that will satisfy artistic desires even though it may be unprecedented. Utility can always be housed in a dignified and beautiful manner when the effort is actuated by the proper spirit.

The same principle applies to factory buildings. Three elements generally determine the design. The first is the arrangement of parts so as to best serve the needs of the occupancy. The second is the selection of the materials and type of construction, guided largely by ultimate cost and availability. The third is speed in execution. The correct resultant is the construction of a building in which to adequately house a business rather than a mere building into which a business is moved. Consideration must be given to the relative value of land and building, city or suburban locations, available labor and other factors.

While factories are buildings of utility, there is being developed a style of exterior design for them which is truly pleasing and dignified. Some architects have been very successful in solving this problem and have produced, at a very moderate cost, a building far removed from the hideous old-time structure that was once thought to be sufficient. The slight added cost in exterior ornamentation is considered to be a good investment by the modern manufacturer.

The American is not efficient until compelled to become so, as can be shown in many ways. The conditions existing to-day are forcing him to become more efficient as a matter of self-preservation. It is the duty of architects and engineers to qualify in the ability to construct cheap buildings as here defined and many can and are now doing so. With the increased numbers so qualified, owners can be convinced that cheap buildings can be erected at this time and the building industry be benefited.

Shipping Board Votes Housing Fund

Immediate expenditure of $1,200,000 to provide housing accommodations for shipyard workers at Newport News has been decided on by the Shipping Board after a Senate sub-committee had presented the urgency of the situation. Housing facilities will be provided at other plants engaged on Government work as soon as possible after Congress passes a bill now pending providing money for the purpose.

The sub-committee, appointed by the Senate Commerce Committee, investigating shipbuilding, has discussed with the board the subject of housing workers at Newport News after Homer L. Ferguson, President of the Newport News Shipbuilding Company, a witness at the recent inquiry, declared his yard could take on no more men until housing was obtained.

It is estimated that to provide the shipbuilding industry with adequate housing for the incoming army of employees, the Shipping Board will have to spend not less than $35,000,000.

Admiral Bowles of the Emergency Fleet Corporation, in his testimony before the Senate Committee of Commerce, suggested that homes or living quarters in the vicinity of shipbuilding plants should be commandeered or requisitioned. It is not likely that methods so radical will be sanctioned by Congress.

An instance, said to be typical of conditions is cited: At an Atlantic Coast shipyard 8000 workers are said to have dwindled in a week's time to 1500, because of insufficient housing.

Committee on Emergency Construction

The report of the sub-committee on emergency construction, issued by the Government, describes the method employed in selecting contractors for the construction of the new army cantonments, a task in which the Quartermaster's Department asked the committee to assist. The selection was based on a general canvass of the country's contracting establishments, which included a detail inventory of their capacity and reliability. Suggestions were first obtained from a questionnaire sent to leading architectural firms, head engineers, engineers of Government naval stations, and a select list of members of the American Society of Civil Engineers. From their recommendations questionnaires were sent to the contractors they had suggested, and these, as they came in, were amplified and expanded, cross indexed and subdivided with regard to locality and magnitude of operations which, through experience, the various contractors were qualified to undertake. From these lists, as the cantonment sites were selected, recommendations of contractors were made by the committee to the Quartermaster's Department. Similar assistance was given the Signal Corps, the Corps of Engineers, and Ordnance Department, in the solution of their problems.

Demolition of Reinforced Concrete Buildings

AS time passes the demolition of reinforced concrete structures will be a matter of more common occurrence. At this time it is an unusual proposition and the methods employed are of interest. THE AMERICAN ARCHITECT of November 28, 1917, described the test applied to the floors of the Western Newspaper Union Building in Chicago, before the removal of the building was under way.

The building was an eight-story and basement structure designed to carry floor loads of 250 and 300 pounds per square foot. There were approximately 13,000 square feet of surface on each floor, or a total of 117,000 square feet, including the roof. The five lower floors were of the four-way flat slab type, and the upper floors and roof had 16 x 24-inch girders in both directions to the columns. The slabs were 8½ inches thick.

WRECKING EIGHTH FLOOR SLAB

Seventh floor exposed. Next operation is to pull down columns in seventh story.

WRECKING FLOOR SLABS WITH BALL

The wrecking was accomplished by the use of a 1200-pound cast-iron ball, similar to those used for breaking castings at foundries. This ball was suspended on a single-fall line from the end of a 40-foot boom attached to an electrically driven, stiff-leg, 20-foot mast derrick. The derrick was mounted on a 16 x 24-foot platform on rollers.

The weight was dropped on the slab from as

high a point as possible, shattering the concrete up to the column heads and girders. The weight was then dropped on the column heads, which resulted in breaking the concrete away from the column rods to a height of 4 or 5 feet at the base of the column at the floor below. Later a fire was built about the

CUTTING SLAB BARS WITH ACETYLENE TORCH

base of the columns and water thrown at the heated concrete. This caused the concrete to crack and disintegrate, and after the rods were cut the columns were pulled over with a cable attached to the hoisting drum. All rods were cut with an oxy-acetylene torch.

The brick walls were wrecked by placing the end of the 40-foot boom against the wall in a horizontal position and perpendicular to the wall. The derrick was anchored to the floor, near the base of the wall, with a cable, and by taking up the cable on the hoisting drum a direct push was exerted against the wall, thus overturning it.

A hole was broken through all the floors and a chute installed, into which all the debris was thrown and delivered to a hopper, which in turn delivered it to motor trucks on the first floor. The debris was carried to the chute by means of a slip scraper and horses, as shown in the photograph.

The salvage consisted of 600 tons of reinforcing steel, the windows and glass, piping and fixtures. Sixty-five men were employed, four of whom were required to operate the ball. Ten weeks were required to wreck the building, proceeding at the rate of a floor per week, including two weeks consumed with the heavy work in the basement.

Without credit for the salvage, the cost of demolition was 25 per cent of the original cost of the building, which was erected in 1909. As building construction was comparatively cheap then and labor very high at this time, the cost is quite high. Based on the area and other data given, one man would wreck about 35 square feet per day, to which cost must be added the equipment cost, removal of rubbish, supervision, insurance and other items of overhead and profit.

REMOVING DEBRIS TO CHUTE WITH TEAM AND SLIP SCRAPER

The building was wrecked by the W. J. Newman Wrecking Company, the work being directed by Mr. A. W. Marshall, engineer for the company. The building was designed by S. N. Crowen, architect, and Ritter & Mott, structural engineers.

Modern Hospital Lighting

By F. Laurent Godinez

THE one really big issue involved in modern hospital lighting is the physiologic aspect. Less than 10 per cent of the hospitals in this country are provided with lighting which might be termed visually *safe*. The solution of the physiological problem does not imply the selection of any particular method or system of light utilization, in the commercial sense, and either the direct, semi-indirect, or indirect principles can be combined, or used separately to produce sanitary illumination.

Outlet Location

The assignment of the *locale* for each outlet is the foundation upon which the stability of any lighting structure depends. I have found that a detailed study of this subject will result in savings of from 15 to 60 per cent in electrical wiring costs. In a recent analysis of hospital lighting, which included over twelve thousand cases, 90 per cent of the outlets were misplaced and 54 per cent should have been eliminated. They had been located with reference to fixtures which were selected—not *designed*—to meet the requirements. The problem of outlet placement begins with a study of the exterior lighting. It is germane to the subject to remark that the approaches to hospital entrances should be well lighted. Many of the accidents resulting from collisions between ambulances and the private vehicles of visitors could have been avoided had lighting been provided which actually illuminated. The ornamental column with the luminous ball appears to be stereotyped mode of exterior illumination prescribed by convention. Its utility and beauty depend upon the character of glassware used and the illuminant placement. In every instance where the interior of these ball lights has been left to the discretion of the manufacturer the inevitable cluster, or group of lamps, is encountered within a globe of ground glass. The result defeats the architect's purpose by allowing most of the light to be wasted, and instead of preserving the symmetry of the ball and column as it appears in daylight, the ground glass creates the effect of a dismal spot of light within a faintly luminous, indefinite outline, failing utterly to convey the slightest suggestion of a lighted sphere. The corrective alternative consists of a single lamp within dense opal glass which produces an ideal diffusion and a distribution of light which is 50 per cent more effective than ground glass (Fig. I). A further utilization of light is possible by placing a funnel-shaped piece of opal glass over the lamp, so that the large opening of the funnel is near the top of the inclosing globe, the small end resting on wire supports which are anchored at the base of the lamp socket. This device will increase the useful distribution of light 25 per cent. The entire expense of outside wiring and accessories can be avoided by using flood light projectors, which can be placed on the building so that the source of light is concealed, but the surroundings revealed perfectly. Regardless of the architectural characteristics of a hospital building the use of flood lighting projectors for the illumination of the building itself is not recommended on account of the extraneous light which is exceedingly offensive to occupants of the wards. The conventional location of outlets on either side of entrances is greatly overdone. In effect, the lanterns which are usually a part of these outlets become mere blotches of light at night, and, since they are neither useful nor beautiful, may be regarded as superfluous, expensive vagaries. Another error consists in placing lanterns of elaborate design against a background which has no sympathetic embellishment. These entrance fixtures, if thoroughly in harmony with architectural expression and properly subdued in brightness, add materially to the effectiveness of the *ensemble*, although contributing in no degree to utilitarian purposes. I have frequently encountered lighting of this character which while ideal in expression failed to provide any illumination whatsoever on the entrance steps, nor did the lighting of the vestibule aid materially in limiting this danger risk, which in the year 1916 resulted in 420 accidents from "slipping and falling" on unlighted hospital entrances. This does not imply that lighting which is artistic must be useless, but it does indicate a lack of attention to illuminant placement, which, with the proper accessories in the form of redirective mediums, can rectify all such utilitarian omissions. The placement of an assymetric reflector over a lamp within a lantern eliminates the uneven splotch of light on the wall behind the fixture, and illuminates the entrance steps below, so that they may be used with safety.

Reception Rooms

In assigning outlets the reception room, if there be such a place, is slighted. Visitors are usually in a state of suspense, and in revising wiring schedules the architect should provide sufficient outlets in number and capacity to assist the decorator in creating an atmosphere of cheerfulness which has

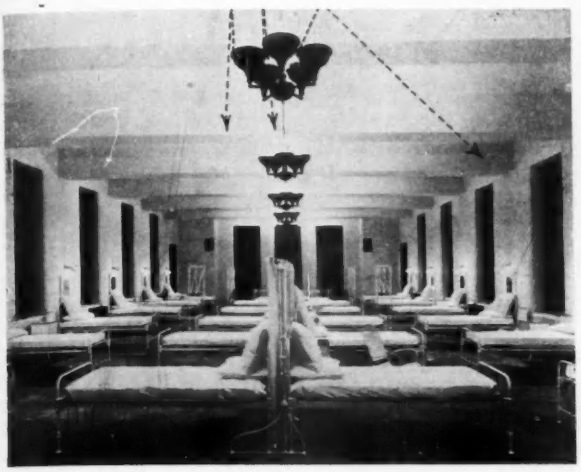

Fig. 1. Illustrating the effect of change of distribution by reflector shape or lamp placement. The two arrows (left) show the directional effect of light like a spot-light, in a similar manner the ceiling redirects the light abruptly downward. The single arrow (right) illustrates the redirective effect from a reflector which gives a wider distribution, much to the discomfort of the occupants of the wall beds. The dirt factor precludes such arrangements as illustrated. The correct method is illustrated in Fig. 2.

been conspicuous by its absence in such applications. Usually, and particularly at present, the expense per bed of hospital construction prohibits the assignment of space to other than the most essential usages, thereby limiting the accommodation for visitors to rows of benches or chairs placed in corridors and entrances. Where reception rooms have been included the choice between ceiling or floor outlets depends largely upon the distribution of the electric wiring to other points. Rooms which are nearly square, regardless of ceiling height, can be pleasantly lighted from either one floor or ceiling outlet, by a table lamp or ceiling fixture, respectively. There are table lamps available which produce general or local illumination as desired. The wall bracket should not be considered unless the same outlet, "broken through," would serve to illuminate the adjoining room. I have often reduced wiring expense over 40 per cent by using one run of wire to adjoining outlets in this way, but the plan is not effective unless special reflectors are designed to "cut" the light from the wall (above the bracket) and redistribute it upon the ceiling at the proper angle. Where it is possible to modify construction, or to arrange in advance for the housing of equipment, a continuous reflector can be ensconced above a doorway, providing an ideal means of illumination without the conventional "fixture." Such equipment should be provided with a dust-proof glass cover of a yellow tint, unless the proper color treatment of walls and ceilings is pre-assured. The reception room has been undergoing a series of reforms which will probably culminate in its transformation into a pleasant, reposeful room, cheerfully lighted, and providing diversion in the form of reading matter and pictures for the distracted visitor. In this way, the psychological impression of terror associating the hospital with the morgue will be effaced from the public mind.

Doctors' Offices and Consulting Rooms

As a rule, offices are provided for visiting physicians, and many of the larger hospitals provide a room for the accommodation of the house surgeon, house physician and internes, when on call. The governing conditions vary greatly regarding the equipment of such interiors. Some of the largest hospitals provide quite elaborate offices for visiting physicians, varying from an equipment of table, desk and chairs to a completely furnished office with every accessory, including house and outside telephone service. Naturally the dividing line is plainly marked before even wiring specifications are prepared, but I have encountered among hospitals of the average class a deplorable tendency to dispense with outlets which are indispensable, as proven by the records of later installation at greater expense. Rooms like these are not so large, and it is possible to determine by inspection the only pos-

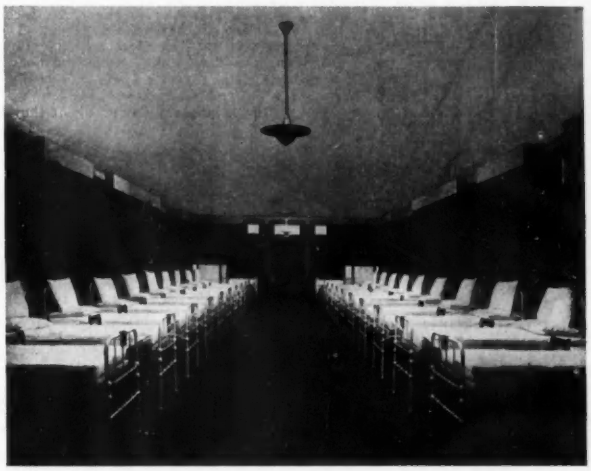

Fig. 2. An excellent example of glare-elimination by properly calculating the direction of the light rays which are redirected from the ceiling downward. In many wards this "directional" function has been entirely neglected, resulting in a constant source of visual annoyance to patients regardless of their position, for in a lying or sitting posture it is not possible for Nature's protective mechanism, the eye-brow, to intercept sharp rays of light which are reflected downward from the ceiling acutely.

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sible location of furniture, assigning base-board outlets accordingly. Extreme liberality in specifying the outlet capacity is urged since it is not unusual for physicians to conduct diagnoses in these rooms, and relying entirely upon artificial light. In redesigning the lighting of a hospital of the average size I was recently confronted with the problem of adequately lighting such a room provided with one solitary base-board outlet. Economic restrictions prohibited additional wiring, but through some error the capacity of the outlet was over the usual allowance of 600 watts. An aluminum reflector mounted on a stand was placed upon the doctor's instrument cabinet, and one 500-watt Mazda-C lamp provided an indirect illumination of exceedingly high intensity. From the same outlet a local desk lamp was connected, and also a special spotlight to illuminate the microscopic field for bacteriological research. A hand spotlight for local examination was also connected, but, with one operative, obviously all of these devices could not be used at one time. Since the desk and the medicine cabinet happened to be adjoining, the several connecting cables were not in evidence, but rarely is it possible to impose upon one outlet the work of five. The custom of providing a powerful drop light similar to those used over operating tables from one center ceiling outlet in doctors' offices and consulting rooms is to be avoided since frequently it is not convenient for the examining table to be centrally located. For this reason a semi-indirect unit of high intensity is ideal since it provides ample light regardless of the subject's position. There are semi-indirect fixtures available consisting of an annular, conical reflecting surface within an exterior frame, within which the lamp is suspended, with the filament so placed that the greater portion of the flux is directed upon the ceiling while a lesser portion is allowed to pass *below* the reflecting zone through an opal bowl which forms the lower portion of the fixture body. An adjustment is provided so that the filament of various sized lamps can be instantly located, and the correct distribution of light attained without unsightly circles of light above the fixture or uneven lines of brightness on the walls below the ceiling. Such a fixture, with several base-board outlets, is ample provision for any lighting emergency.

Fig. 3. The objective of light in the operating room is the operating table. Heat and exaggerated shadow must be eliminated. The "white" room is passing, owing to the lack of contract and resultant eye strain. No two surgeons possess the same optical characteristics, and modern lighting equipment for the operating table must be adjustable to the personal equation. In the "white" room the floor illuminates the ceiling and surroundings with a reversal of indirect lighting procedure. With grey or brown walls and dark floors auxiliary wall lights are essential, but their brilliancy must be greatly subdued, or they become distraction factors.

Superintendents' Offices

Every hospital building, large or small, provides an office for its superintendent, and the lighting of such offices depends upon their size and the plan of general outlet placement. If ceiling outlets have been provided on the same floor, the selection of the ceiling center for an outlet will afford a means of satisfactory general or local illumination, with suitable fixture equipment. In such offices there are usually filing cabinets, but these do not require special local lighting if the method of general illumination is of sufficient intensity and correctly distributed, without waste or misdirection. Base - board outlets are essential for the desk light, fan, and various electric appliances which are a part of the supervisor's equipment. Maintenance efficiency is assured by the installation of a switchboard with recording electrical meters, measuring the hourly, daily and weekly consumption of electrical energy for light and power throughout the building. Recording chart instruments in synchronism with integrating watt meters (registering total energy consumed) give an exact means of checking the meters from which the charges of the lighting company are based. In selecting fixtures for these rooms special attention is urged in the avoidance of over-translucent glassware. The modern superintendent's office also includes intercommunicating telephone apparatus, facilitating instant connection with any ward station, or operative in the building, and it is well to provide a centralization of

auxiliary fire signal indicators at this point where frequent tests can be made. Many superintendents' offices are *en suite* with adjoining bedrooms, the executive remaining on the premises day and night, in the larger hospitals. Physiologic lighting is not possible unless glassware of low intrinsic brightness is used, and throughout the entire hospital, this element should receive thorough consideration and standardization.

Toilets and Bathrooms

By departing from stereotyped convention in "prescribed" lighting arrangements a 60 to 80 per cent saving in electrical wiring can be effected in toilets and bathrooms. The practice of placing wall brackets between mirrors over wash basins, supplementary to a ceiling fixture, is the acme of inefficiency. There are several alternatives. One consists of the concealment within the molding strip (running the entire length of the line of individual toilet doors) of a continuous reflector, connected at one end with one outlet, near which, on the wall below, the control is located. The continuous reflector illuminates the interior perfectly, and nothing resembling the obnoxious wall bracket exists as a defacement of hygienic environment. From the single outlet and control two sections of the lamp units are controllable, so that a subdued or maximum illumination obtains by a turn of the switch, which should be of the locking type, identified with a number on the maintenance schedule. By regulating the use of light in this way, and placing the responsibility for such regulation upon one employee, absolute economy in operative and maintenance cost is assured, but this result is not possible unless operatives are provided with proper equipment by the architect's forethought and discrimination.

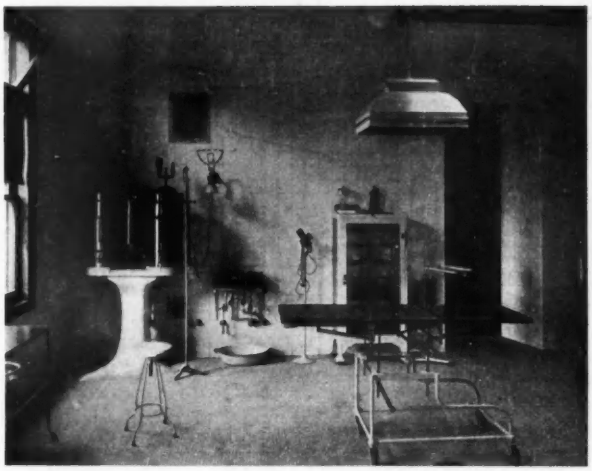

Fig. 4. The inconvenience of insufficient outlets is beyond exaggeration, and the construction of the operating room renders the cost of installing additional outlets prohibitive. In this instance the table is well lighted, but the placement of the wall outlet was not premeditated, as evidenced by the make-shift expedient of the drop-cord and lamp hanging from the floor stand. There are no baseboard or floor receptacles, hence the utility of the spot light is greatly impeded. Had the wall bracket been reverse (see dotted lines) and a fairly dense opal reflector attached, a 100 watt Mazda-C lamp would provide ample illumination for all adjacent wall requirements, also furnishing at least three extra outlets at the base of the reversed fixture canopy. The Operating Room is the last place where outlet economy should be practised.

Service and Utility Rooms and Closets

These rooms require a light which reveals everything clearly and quickly. A center ceiling outlet in large rooms or a wall bracket in small rooms with efficient semi-indirect adjuncts and control placed at the point of greatest convenience solves the problem conclusively. With high ceilings it is possible and profitable to house continuous reflectors. Unless linen and medicine closets are brightly lighted from adjacent fixtures it is imperative to specify special lighting, operating automatically by switches which are attached to doors. These switches have been quite unsatisfactory in the past, but recent improvements have made them entirely practical and reliable. They may be set for manipulation in juxtaposition, either lighting the light when the door is opened or when it is closing.

(To be continued)

A Matter of Conservation

A feature of the Halifax disaster was the blinding and mutilation of many hundreds of persons by the destruction of window glass. The primary and less violent explosion caused the occupants of factories, stores, schools, offices and residences to rush to the windows to ascertain its cause. The second explosion destroyed the windows, forcing the shattered glass over the people with disastrous results.

As a matter of human conservation we suggest that there is a use for wire glass other than that of resisting fire. Had these buildings been glazed with such glass this unfortunate condition would not have been possible.

These disasters do not occur often enough to warrant such protection from their effects. But they show that such materials may have uses other than those originally intended by the manufacturers.

A very large taxicab corporation in the West is glazing its cabs, including the windshields, with wired glass as a means of protecting the occupants from some effects of accidents.

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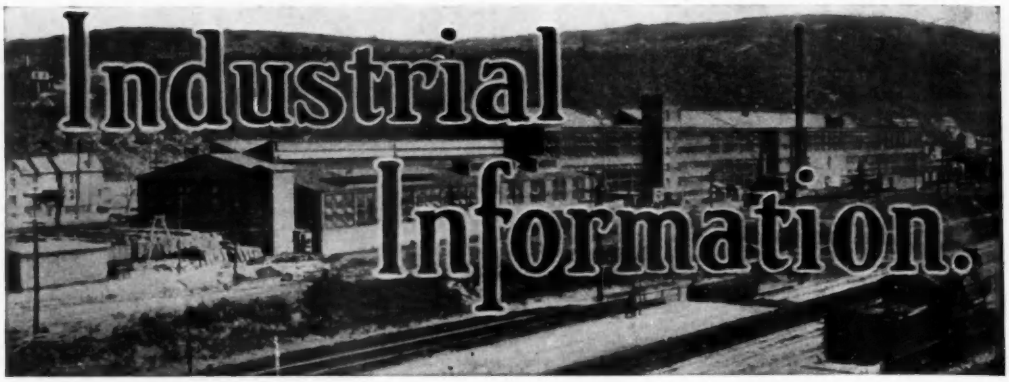

Wire Products

The Wright Wire Company of Palmer and Worcester, Mass., with branch offices and warehouses in principal cities, have specialized for years in wire products. In the Palmer and Worcester factories not only is wire drawn in all gages, but poultry netting, wire ropes and cables are manufactured. There are special departments for wire fences and trellises, as well as for all varieties of ornamental ironwork. In their illustrated booklet the company states that "their line, in its entirety, includes a most extensive representation of all that is generally accepted under the trade titles of wire and wire products and ornamental iron. Many of our wire products are made to meet special requirements, including articles made to meet the war specifications of the United States and allied governments."

Wood Block Floors

A type of wood flooring which is claimed to give most excellent results is that put on the market by the Ayer & Lord Tie Company, Inc., Railway Exchange Building, Chicago, with branch offices in principal cities.

The Creosoted Wood Blocks prepared by this company are said to display great wearing qualities; to be easily repaired; to absorb vibration; and to be exceedingly difficult to burn, particularly when set on a concrete base. No dressing or hardening compound is required, while the surface, it is stated, is improved with use.

The blocks employed are cut from selected yellow pine, and so treated with creosote as to make a material said to be proof against decay, the harmful action of oils, acids or alkali solutions, and highly fire-resistant, while at the same time preserving the undiminished strength of the wood. The company calls attention to the advantages of creosoted wooden blocks for street paving, while it claims that its A and L Wood Block Flooring can be most satisfactorily installed in factories, foundries, and various industrial plants.

Automatic Sprinkler Systems

In view of the fact that so much valuable property is yearly destroyed by fires, measures of safety seem to be becoming more and more of a necessity. Particularly at the present time, when incendiarism, so often due to plots of the enemy, seems to be a constant menace, should all systems of protection to life and property be investigated.

The General Fire Extinguisher Company, manufacturer of Grinnell Automatic Sprinklers, claims to have prepared devices which are of particular assistance in preventing and controlling fires. This company, with business offices in the Society for Savings Building, Cleveland, Ohio, and plants and warehouses in principal cities, states that, by means of its "Supervisory System" dangers from fires are practically eliminated. A signal system automatically reports any departure from normal conditions, while "each signal is reported in a log book and is reported daily to the Insurance Underwriters having jurisdiction, so that they are constantly aware of the exact fire protection conditions surrounding their risks.

"In addition to the foregoing infallible service there is an independent inspection and testing service conducted monthly by the operating company in accordance with the rules of the National Board of Fire Underwriters. This inspecting and testing service is made by experts and consists of actual operation of valves, alarms, etc., thus practically guaranteeing the integrity of the automatic operation of the actuating devices and the sprinkler system itself." The measures worked out by this company would seem to insure, as nearly as possible, a complete fire protection.

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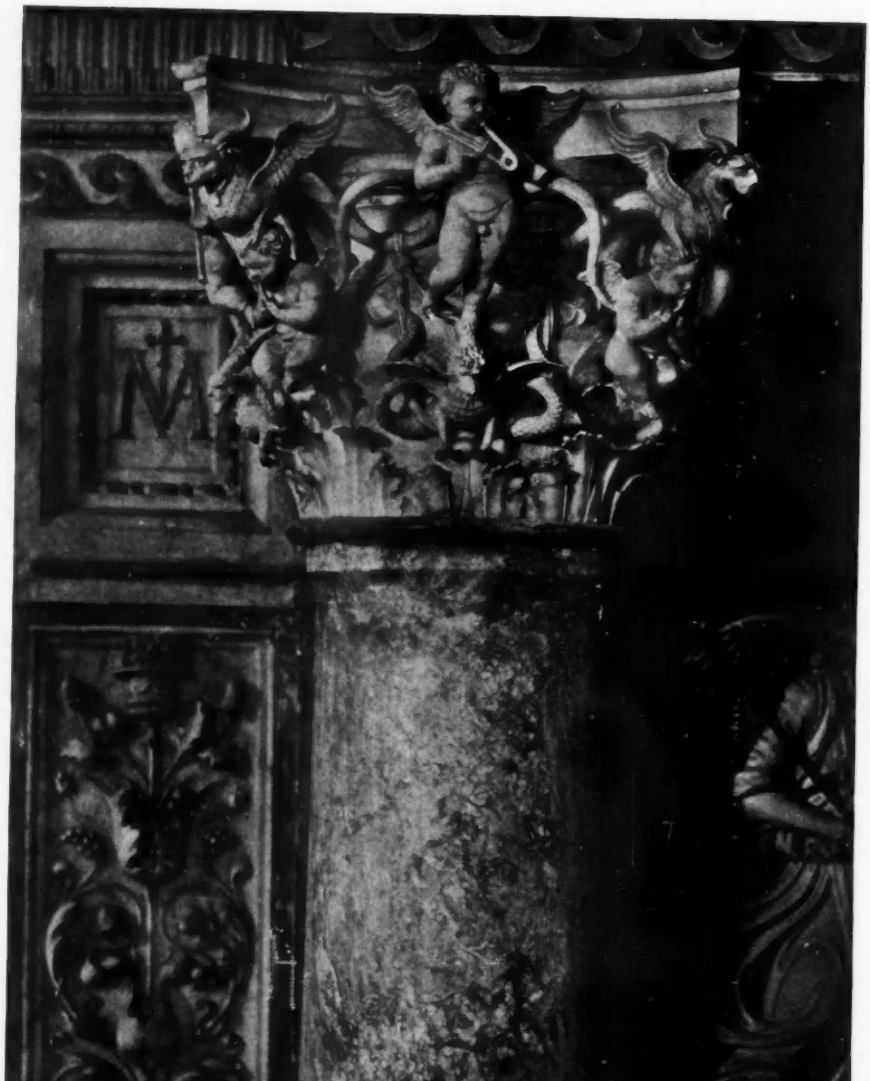

DETAIL OF HIGH ALTAR, CHURCH OF FONTEGIUSTA, ALINARI, ITALY (1517)